

Stellungnahme zum Mathematischen Forschungsinstitut Oberwolfach (MFO)

Inhaltsverzeichnis

1. Beurteilung und Empfehlungen	2
2. Zur Stellungnahme des MFO	4
3. Förderempfehlung	4

Anlage A: Darstellung

Anlage B: Bewertungsbericht

Anlage C: Stellungnahme der Einrichtung zum Bewertungsbericht

Vorbemerkung

Die Einrichtungen der Forschung und der wissenschaftlichen Infrastruktur, die sich in der Leibniz-Gemeinschaft zusammengeschlossen haben, werden von Bund und Ländern wegen ihrer überregionalen Bedeutung und eines gesamtstaatlichen wissenschaftspolitischen Interesses gemeinsam gefördert. Turnusmäßig, spätestens alle sieben Jahre, überprüfen Bund und Länder, ob die Voraussetzungen für die gemeinsame Förderung einer Leibniz-Einrichtung noch erfüllt sind.¹

Die wesentliche Grundlage für die Überprüfung in der Gemeinsamen Wissenschaftskonferenz ist regelmäßig eine unabhängige Evaluierung durch den Senat der Leibniz-Gemeinschaft. Die Stellungnahmen des Senats bereitet der Senatsausschuss Evaluierung vor. Für die Bewertung einer Einrichtung setzt der Ausschuss Bewertungsgruppen mit unabhängigen, fachlich einschlägigen Sachverständigen ein.

Vor diesem Hintergrund besuchte eine Bewertungsgruppe am 12. und 13. Mai 2016 das Mathematische Forschungsinstitut Oberwolfach (MFO). Ihr stand eine vom MFO erstellte Evaluierungsunterlage zur Verfügung. Die wesentlichen Aussagen dieser Unterlage sind in der Darstellung (Anlage A dieser Stellungnahme) zusammengefasst. Die Bewertungsgruppe erstellte im Anschluss an den Besuch den Bewertungsbericht (Anlage B). Das MFO nahm dazu Stellung (Anlage C). Der Senat der Leibniz-Gemeinschaft verabschiedete am 9. März 2017 auf dieser Grundlage die vorliegende Stellungnahme. Der Senat dankt den Mitgliedern der Bewertungsgruppe und des Senatsausschusses Evaluierung für ihre Arbeit.

1. Beurteilung und Empfehlungen

Der Senat schließt sich den Beurteilungen und Empfehlungen der Bewertungsgruppe an.

Das Mathematische Forschungsinstitut Oberwolfach (MFO) ist eine exzellente **soziale Forschungsinfrastruktur**² von hoher internationaler Strahlkraft. Das MFO bietet verschiedene in Dauer und Teilnahmezahl variierende Veranstaltungstypen (Programmlinien) an, für deren Durchführung Forschende der Mathematik in einem wettbewerblichen Verfahren Anträge stellen. Im Rahmen der bewilligten Veranstaltungen kommen pro Jahr ca. 3000 Mathematikerinnen und Mathematiker zu einem konzentrierten, intensiven Austausch in Oberwolfach zusammen, womit das MFO maßgeblich zur Generierung neuer Ideen und Forschungsarbeiten beiträgt. Wesentlicher Bestandteil der hervorragenden Arbeitsbedingungen am MFO ist die Bibliothek, die zu den weltweit besten mathematischen Bibliotheken zählt.

Die **Programmlinien des MFO** sind in drei Teilbereichen organisiert. Der Teilbereich 1 (*Short term research stays*) beinhaltet die international hoch anerkannten Workshop-Programme und wird als „exzellent“ bewertet. Im Teilbereich 2 (*Long term research stays*) wird eine Programmlinie ebenfalls als „exzellent“ bewertet, die zweite als „sehr

¹ Ausführungsvereinbarung zum GWK-Abkommen über die gemeinsame Förderung der Mitgliedseinrichtungen der Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz e. V.

² Zur Begriffsbildung vgl. Wissenschaftsrat: Empfehlungen zu den Forschungsinfrastrukturen in den Geistes- und Sozialwissenschaften (28.01.2011, besonders S. 20. – Der Begriff wird inzwischen auch von der Leibniz-Gemeinschaft verwendet, vgl. Leibniz-Gemeinschaft: Forschungsinfrastrukturen. Berlin [2014])

gut“. Der Teilbereich 3 (*Training activities for junior scientists*) wird insgesamt als „exzellent“ bewertet.

Forschungsergebnisse, die im Rahmen der Veranstaltungen am MFO erarbeitet oder durch diese befördert wurden, werden typischerweise als **Publikationen** der jeweiligen Heimatinstitutionen der beteiligten Personen veröffentlicht. Es gibt viele Publikationen, die explizit auf das MFO verweisen. Darüber hinaus werden in drei institutseigenen, gut auf die Programme des MFO zugeschnittenen Publikationsserien Inhalte aus den verschiedenen Veranstaltungen veröffentlicht.

Neben seinem wissenschaftlichen Veranstaltungsprogramm hat das MFO auch einige sehr gute Angebote erarbeitet, die sich an eine interessierte **Öffentlichkeit** richten. Hervorzuheben ist ein von der Klaus Tschira Stiftung gefördertes Projekt, in dem eine Plattform für die interaktive Mathematikvermittlung (IMAGINARY) entwickelt wurde. Auch das daran anschließende neue Projekt „Snapshots of modern mathematics from Oberwolfach“ ist überzeugend.

Verantwortlich für die **Evaluierung und Auswahl der Anträge** ist das sehr gut arbeitende *Scientific Committee* (SC). Es besteht aus 20 bis 25 international ausgewiesenen Wissenschaftlerinnen und Wissenschaftlern und ist das zentrale Gremium für die Arbeiten des MFO. Die Begrenzung der Dauer der Mitgliedschaft im SC auf acht Jahre sollte auch auf den Vorsitz des SC ausgeweitet werden. Außerdem liegt der Frauenanteil im SC derzeit bei lediglich 20 % und sollte deutlich erhöht werden. Die Auswahl der Anträge durch das SC wird durch die beiden Direktoren des MFO, die gleichzeitig mit der Hälfte bzw. 80 % ihrer Tätigkeit Hochschullehrer in Tübingen bzw. Freiburg sind, sowie einen kleinen Stab hervorragend vorbereitet und organisiert. Die Veranstaltungen werden professionell begleitet. Dies ist insbesondere auf das hohe Engagement der Beschäftigten in der Administration, der Bibliothek und im Hauswirtschaftsbereich zurückzuführen.

Die hohe Akzeptanz der Programmlinien und Auswahlentscheidungen im Fach spiegelt sich u. a. darin, dass international führende Mathematikerinnen und Mathematiker regelmäßig Anträge am MFO stellen. Zwei Drittel aller mit der Fields-Medaille ausgezeichneten Personen wirkten bereits an Veranstaltungen in Oberwolfach mit. Das MFO ist eine in beeindruckender Weise internationalisierte Einrichtung. 70 % aller **Teilnehmerinnen und Teilnehmer** kommen aus dem Ausland. Gleichzeitig gelingt es, in einem angemessenen Verhältnis den wissenschaftlichen Nachwuchs zu berücksichtigen. Jedoch sollte das MFO seine Programmlinien auf noch systematischere Weise in der internationalen mathematischen *community* bekannt machen.

Nach wie vor wirken **Frauen** nur mit einem Anteil von 12 bis 15 % als Organisatorinnen und Teilnehmerinnen an Veranstaltungen mit. Als international herausragende Einrichtung muss das MFO auch auf diesem Gebiet eine Vorreiterrolle einnehmen und die Beteiligung von Wissenschaftlerinnen erheblich steigern, so wie es auch der überzeugend arbeitende Wissenschaftliche Beirat empfohlen hat. Es wird begrüßt, dass sich das MFO mit seiner Stellungnahme zum Bewertungsbericht selbst verpflichtet, konsequent Maßnahmen einzuführen, um dies zu erreichen. Wie im Bewertungsbericht angeregt könnte zum Beispiel ein geeignetes Mittel sein, regelmäßig eine Beteiligung von Wissenschaftle-

rinnen in den Organisationsteams der Veranstaltungen vorzusehen, ähnlich wie es bei der Beteiligung von Personen aus dem Ausland bereits vorgesehen ist.

Das MFO ist eine hervorragende soziale Forschungsinfrastruktur, die maßgeblichen Einfluss auf die Entwicklung der internationalen mathematischen Forschung hat. Das MFO betreut verschiedene hervorragende wissenschaftliche Veranstaltungsprogramme wie es in dieser Form von einer Hochschule nicht geleistet werden kann. Eine Eingliederung in eine Hochschule wird daher nicht empfohlen. Die Bedeutung von „Oberwolfach“ zeigt sich auch darin, dass das Institut in den vergangenen Jahrzehnten Vorbild für zahlreiche ähnliche Gründungen in Europa, Nordamerika und Ostasien war. Das MFO erfüllt die Anforderungen, die an Einrichtungen von überregionaler Bedeutung und gesamtstaatlichen wissenschaftspolitischen Interesse zu stellen sind.

2. Zur Stellungnahme des MFO

Der Senat begrüßt, dass das MFO beabsichtigt, die Empfehlungen und Hinweise aus dem Bewertungsbericht bei seiner weiteren Arbeit zu berücksichtigen.

3. Förderempfehlung

Der Senat der Leibniz-Gemeinschaft empfiehlt Bund und Ländern, das MFO als Einrichtung der Forschung und der wissenschaftlichen Infrastruktur, die in erheblichem Umfang wissenschaftliche Infrastrukturaufgaben wahrnimmt, auf der Grundlage der Ausführungsvereinbarung WGL weiter zu fördern.

Annex A: Status report

Oberwolfach Research Institute for Mathematics (MFO)

Contents

1. Structure, Tasks and Institutional Environment	A-2
2. General concept and profile.....	A-4
3. Subdivisions of MFO	A-9
4. Collaboration and networking.....	A-12
5. Staff development and promotion of junior researchers.....	A-12
6. Quality assurance	A-14

Appendices:

Appendix 1: Organisational chart	A-17
Appendix 2: Publications and Scientific Programme.....	A-18
Appendix 3: Revenue and Expenditure	A-19
Appendix 4: Staff.....	A-20

1. Structure, Tasks and Institutional Environment

Development and funding

The Mathematisches Forschungsinstitut Oberwolfach (MFO) was founded in 1944. Following an evaluation by the Science Council (Wissenschaftsrat) in 1999, MFO became member of the Leibniz Association in 2005, and joint federal and state funding within the framework of the Leibniz Association commenced in January of 2006.

MFO was last evaluated in 2009. On the basis of the Senate's recommendations and a joint statement by the responsible departments at Federal and *Länder* level, the Joint Science Conference in February 2010 determined that MFO still met the requirements for joint funding.

Responsible department at *Länder* level: Ministry of Science, Research and Arts of Baden-Württemberg, Stuttgart (MWK)

Responsible department at federal level: Federal Ministry of Education and Research, Berlin (BMBF)

Mission and organisation

According to its Articles of Association (*Gesellschaftsvertrag*) MFO's purpose is:

- intensification of mathematical research
- intensification of scientific cooperation
- continuing education in mathematics and related areas
- promotion of young scientists.

These objectives are accomplished with the organisation of **workshop programmes** of short as well as long term research stays and training activities, which form MFO's core activity. Hence, MFO has neither permanent research positions nor long term research projects of its own. Almost 3000 researchers meet at Oberwolfach annually, 70 percent of them coming from abroad. The institute operates during 50 weeks of the year and the programmes cover the entire spectrum of the field of mathematics including its applications in science and technology.

Following its programmes MFO has three subdivisions (c.f. chapter 3):

- Short term research stays: Oberwolfach Workshops and Mini-Workshops
- Longer term research stays: Research in Pairs and Oberwolfach Leibniz Fellows
- Training activities: Oberwolfach Seminars and Arbeitsgemeinschaft

Legal form

MFO has the legal structure of a gGmbH, i.e. a non-profit corporation. The single shareholder of MFO gGmbH is the *Gesellschaft für mathematische Forschung e. V.* (GMF). MFO gGmbH has four bodies: Management, Administrative Council, Shareholders' Meeting and the Scientific Advisory Board (SAB).

Boards of the institution

MFO's **management** consists of the director and deputy director who fulfil their duties with 50% (director) and 20% (deputy director) of their respective workload as university teachers. Next to the management and operation of the institute, the director is in particular responsible for the ongoing research and development planning and the annual scientific work planning, which is done in consultation with the Scientific Committee of the GMF.

The **Administrative Council** is the legal supervisory board of MFO and decides on the medium- and long-term finance and budget planning. It appoints the members of the Scientific Advisory Board and the directors.

The **Scientific Advisory Board** consists of six to eight internationally distinguished external scientists. Its members are appointed by the Administrative Council for a four-year term and can spend a maximum of two terms of office. The board reflects the breadth of scientific themes represented at MFO and advises the Administrative Council and the directors on all strategic issues of the institute. It evaluates on a regular basis its research and service activities.

The **Scientific Committee** of the GMF is composed of about 20 to 25 internationally renowned mathematicians reflecting the full spectrum of scientific themes represented at MFO. The members are elected by cooption for four-year terms and can spend at most two terms of office. The Scientific Committee decides on all scientific proposals for the programmes of MFO in agreement with the directors.

National and international scientific environment

Although there are many international non-university mathematical research institutes, only very few of them have a similar structure and mission as MFO, as the institute points out, i.e. with an emphasis on workshops, seminars, study groups and conferences and without long-term employed researchers working on specific research projects. According to MFO, these institutes have been founded with explicit reference to the Oberwolfach model, each of them having its individual scope and emphasis:

- *Centre Internationale de Rencontres Mathématiques* (CIRM, since 1982) in Luminy, France
- Schloss Dagstuhl – Leibniz Center for Informatics (LZI, since 1989, computer science) in Dagstuhl, Germany
- American Institute of Mathematics (AIM, since 1994) in Palo Alto, USA
- Mathematical Research and Conference Center (MRCC, since 1998) in Będlewo, Poland
- Banff International Research Station (BIRS, since 2003) in Banff/Canada, with affiliate in Oaxaca, Mexico (since 2015)
- Tsinghua Sanya International Mathematics Forum (TSIMF, since 2013) in Hainan, China

Also, there are other research institutes, research centres and departments at universities that run special workshops and summer schools as part of their longer-term activi-

ties, like, in Germany, the Max Planck Institutes in Bonn and Leipzig, the Fraunhofer Institutes in Kaiserslautern and Sankt Augustin, the Weierstraß Institute of the Leibniz Association in Berlin, and the Hausdorff Center for Mathematics in Bonn. However, the dedication to intense short-term programmes selected on a competitive basis by an independent international Scientific Committee and together covering the whole spectrum of mathematical research distinguishes MFO from institutes running specific long-term programmes. In fact, as MFO points out, staff of these other institutes are frequent organisers and participants of workshops at MFO.

National interest and justification for funding as a non-university institution

According to MFO, it is an institute that has set international standards with its successful Workshop programme. Through its recognition and deep embedding in the international mathematical community MFO increases the international reputation of German science, advances the international contacts of all visiting scientists in their research fields and offers unique training opportunities to the next generation of mathematicians.

2. General concept and profile

Development of the institution since the last evaluation

In **2009**, the programme “Oberwolfach Leibniz Graduate Students” (OWLG) was introduced after successful application to the Leibniz Competition. The OWLG programme annually supports 200 graduate students or recent postdocs in their participation in an Oberwolfach Workshop.

In **2010**, the Museum for Minerals and Mathematics (MiMa), a common activity with the community of Oberwolfach and with the local minerals association, was inaugurated at Oberwolfach.

In **2011**, MFO received a three-year grant from the German Research Foundation (DFG) to create a unified electronic library portal. Moreover, MFO successfully acquired “swMATH”, a project on the creation of a database for mathematical software, in cooperation with FIZ Karlsruhe – Leibniz Institute for Information Infrastructure and other cooperating partners. Also the Klaus Tschira Foundation started to support the open source outreach project IMAGINARY not only with respect to touring exhibitions but also with the creation of an international virtual network of electronic exhibits.

In **2012** a new deputy director from the University of Freiburg took office at MFO with a 20% position. Also, the administration of the “Research in Pairs”-Programme moved from the University of Kaiserslautern to MFO. The “Oberwolfach Leibniz Fellows”-programme (OWLF) was permanently installed as part of the workshop programme (after a positive evaluation by the Scientific Advisory Board).

In **2013** a new director assumed office at Oberwolfach, on delegation from University of Tübingen with a 50% position. A new project “Simons Visiting Professors” (SVP) providing additional annual support to 40 excellent workshop participants for combined visits of MFO and European universities and institutes was approved by the Simons Foundation for four years. Furthermore, the Klaus Tschira Foundation renewed its support for

IMAGINARY as “Oberwolfach meets IMAGINARY” with emphasis on the new project “Snapshots of modern mathematics from Oberwolfach”.

In **2014**, after evaluation by the Scientific Advisory Board, the typical duration of a stay in an Oberwolfach Leibniz Fellowship (OWLF) was reduced from six to three months in order to prefer shorter but more intense research stays. Moreover, the “Research in Pairs”-Programme was opened to one-week research stays in conjunction with participation in a workshop. In order to improve the management of third-party funds, publications and outreach activities, a second scientific assistant was appointed.

In **2015** the Volkswagen Foundation approved a proposal for the implementation of a modern information and communication structure at MFO, which includes an improvement of the institute’s library facilities. This renewal addresses changing usage of mathematical literature and increased demand for discussion space. A proposal of MFO to the annual Leibniz Competition concerning the spin-off of IMAGINARY as a new and independent company was also positively decided.

Scientific programme and selection process

The scientific programme at MFO has **six main components** (cf. chapter 3):

- Oberwolfach Workshops (about 40 weeks/year)
- Mini-Workshops (4 weeks, 3 mini-workshops each)
- Research in Pairs-Programme (continuously)
- Oberwolfach Leibniz Fellows (continuously)
- Oberwolfach-Seminars (3 weeks, 2 seminars each)
- Oberwolfach Arbeitsgemeinschaft (2 weeks)

The scientific workshop programme is aimed at the whole spectrum of mathematical research including its applications in science and technology. The institute strives for scientific quality at the highest international level based on a competitive selection process concerning research subjects, organisers and participants in the research programmes.

In order to ensure scientific quality, all programmes at MFO are based on competitive proposals that are evaluated and selected by the Scientific Committee of the institute in cooperation with the directors. The Scientific Committee evaluates all proposals on the basis of scientific merit and timeliness of the proposed topics, on the expertise of the organisers and the quality of the proposed participants. The director provides preliminary rankings and feedback of committee members prior the committee’s its annual meeting in October, when the final decision on the workshop programme for the year starting 15 months later is made. Subsequently, the director informs all applicants of the committee’s decision and provides the applicants with feedback and recommendations from the committee when needed. Once research programmes and organisers are determined, the workshop organisers submit a list of suggested invitees to the director, who issues all invitations.

Results

MFO supports research activities of its guests by providing a **social research infrastructure**¹ (including a library) as well as infrastructural support. Among other tasks, it is taking care of the administrative as well as scientific implementation of the programme and assists the workshop organisers in coordination tasks. It handles the entire selection and invitation process, and informs guests about aspects of the MFO facilities and scientific opportunities. The institute also prepares for special requests by participants such as visa support letters, dietary restrictions and childcare support.

According to MFO, the programmes at the institute are fully dedicated to **research**, focusing on the communication of concepts and ideas, the initiation of new projects and brainstorming on major open problems. Research results obtained, inspired and influenced by these programmes are typically published from the home institutions of scientists quite some time after they have left MFO. As the institute points out, there are many **external publications** with an explicit reference to Oberwolfach and its programmes. At present, a retrieval of all publications with the keyword “Oberwolfach” in MathSciNet gives more than 6.000 publications. However, MFO does not have resources to monitor all these publication in a systematic way.

MFO provides printed and electronic resources at its **library**. According to the institute, a very high level of completeness has been achieved both in the monograph collection and in the collection of conference proceedings. Also, almost all mathematics journals can be accessed either in printed or in electronic form. By the end of 2014, the stock of books totalled approx. 56.500 volumes and approx. 29.700 volumes of bound journals. In addition, approx. 5.000 dissertations, 520 current subscriptions to journals as well as about 5.000 licensed electronic journals were available. In the past, the MFO library staff has added new services and search tools and provides continuous professional advice on finding sources to all guests of the institute.

Further **infrastructures** are:

- Oberwolfach Photo Collection (OPC) containing almost 19.000 digital photos of mathematicians from all over the world.
- Oberwolfach References on Mathematical Software (ORMS). The ORMS project started in 2002 and provides methods and tools for locating, cataloguing, reviewing, and searching of mathematical software. In 2011, ORMS was linked to the joint project “swMATH” at FIZ Karlsruhe – Leibniz Institute for Information Infrastructure. As the project “swMATH” is maintained exclusively by FIZ Karlsruhe since 2013, only the database of ORMS is still maintained at MFO.
- Oberwolfach Digital Archive (ODA) making all the books of abstracts and all guest books of the past seventy years freely available through the MFO website.

Knowledge transfer within the mathematical community and beyond is one component of MFO’s work. As the institute points out, many of its research programmes concern applications of mathematics in other sciences, business and industry, which was positively evaluated by the Scientific Advisory Board in 2011 and 2015. The guest research-

¹ Term coined by the Science Council (*Wissenschaftsrat*).

ers directly involved in applied projects and cooperations facilitate knowledge transfer from interdisciplinary workshops to science and technology.

Transfer of mathematical knowledge from MFO to the broader public is done regionally in the **Museum** for Minerals and Mathematics (MiMa) and nationally as well internationally through the outreach project **IMAGINARY**. According to MFO, the foundation of an independent spin-off company is well under way with funds acquired at the Leibniz Competition following the success of IMAGINARY.

MFO disseminates information concerning its research programmes and supports the idea of open access. Almost all **publication series** are freely available on its website.

- **Oberwolfach Reports** (OWR) is published by MFO in cooperation with the publishing house of the European Mathematical Society (EMS) and contains extended abstracts of the talks in the Workshops, Mini-Workshops and Arbeitsgemeinschaften. The reports are available on MFO's website as open access, and (with extended search functionality) on the website of the EMS publishing house via a non-for-profit subscription fee. Every year, four print issues are published in OWR with a total of about 3.500 pages in a print run of more than 300 for the subscribers of the print edition and some libraries who exchange their institute journal with OWR.
- MFO supports the publication of lecture notes within the book series "**Oberwolfach Seminars**" by Springer-Birkhäuser. The authors are organisers of Oberwolfach Seminars. Annually 1-2 books are published in this series.
- **Oberwolfach Preprints** (OWP) collect preliminary results of longer-term research stays of guest researchers in the "Research in pairs" and the Oberwolfach Leibniz Fellows programme. There are approx. 15 to 40 preprints annually with some 500 pages all together.
- **Snapshots of modern mathematics from Oberwolfach** aim at a general scientifically interested public introducing various aspects of research fields discussed in Oberwolfach by Workshop participants. It was introduced in 2013.

Academic events and public relations

In addition to its research activities MFO awards two scientific prizes: The **Oberwolfach Prize** is financed by the Oberwolfach Foundation and awarded in cooperation with MFO to young mathematicians. The prize (Euro 10.000) is awarded approximately every three years for excellent achievements in changing fields of mathematics. The **John Todd Fellowship** (Euro 1.000) is awarded about every three years by the Oberwolfach Foundation and MFO to excellent young mathematicians working in numerical analysis.

Moreover, there is the public annual **Oberwolfach Lecture** at the general meeting of the GMF attracting about 50 attendees.

As part of **public relation**, the scientific community receives information on scientific programmes and events at MFO. The institute sends a biannual newsletter via email to approx. 8.000 recipients. In addition MFO each year sends printed posters and flyers with information on upcoming programmes to about 400 institutions around the world. A further source of information for potential and actual participants of the scientific programmes at MFO is the institute's website.

Raising **public awareness** for MFO and for mathematical research is achieved with the Snapshots-series, IMAGINARY (an exhibition presenting visualisations, interactive installation, virtual worlds, 3D-objects and their mathematical background started in 2008), and the Museum for Minerals and Mathematics (opened in January 2010).

Strategic work planning for the next few years

According to MFO, its main objectives will continue to be the support of mathematical research, the intensification of international scientific collaboration, the promotion of young researchers as well as advanced training in mathematics and its applications.

As MFO points out, the scientific formats of its research programmes are highly successful as certified by the Scientific Advisory Board and visiting scientists. As a result, no major redevelopments of these programmes are planned. However, smaller adjustments are made continuously.

In the coming years, MFO will make particular efforts to optimise the workflow for the Scientific Committee using internet technology to improve the refereeing process. Special efforts will also be made to keep committee members and organisers aware of the need to improve equal opportunities and therefore increase the percentage of female participants in all programmes. Furthermore, efforts will be continued to secure funding for travel expenses of junior scientists and needy participants to make sure that access to the MFO research programmes is only determined by scientific quality. Finally, it is planned to further intensify the advertising of all programmes, in particular to young scientists and to scientists in areas related to mathematics.

Appropriateness of facilities, equipment and staffing

In 2015, MFO's **total revenues** were approx. € 4.6 million including € 3.05 million institutional funding (c.f. appendix 3).

In the same year, MFO was able to attract € 0.71 million **third-party funds and donations**, mainly coming from foundations such as Volkswagen Foundation, Carl Friedrich von Siemens Foundation, Simons Foundation or the Klaus Tschira Foundation, but also from Leibniz Association within the Leibniz Competition. In the period from 2013 to 2015, the revenue from project funding grants accounted for between 28% (2013) and 18% (2015) of the institute's revenue. MFO estimates its funding situation as good.

MFO consists of three adjacent **buildings** which are owned by the GMF: a conference and library building, a guest house including guest office, dining hall and housekeeping sector, and bungalows for guests.

MFO provides an **IT infrastructure** for administrators, staff and visiting scientists.

3. Subdivisions of MFO

3.1. Short term research stays: Oberwolfach Workshops and Mini-Workshops

Oberwolfach Workshops

Description: MFO's main scientific programme consists of about 40 week-long workshops annually, each with about 50 participants. Alternatively, there can be two parallel workshops of half size (about 25 participants) in one week. The workshops are organised by internationally leading experts in the relevant fields. The participants are personally invited by the director after recommendation by the organisers. A special feature of the Oberwolfach Workshops is the research orientation. As MFO points out, guest researchers very often appreciate the stimulating atmosphere, and many significant research projects owe their origin to the realisation of a workshop in Oberwolfach.

Decision process: Prospective organisers send a proposal to the director, including a detailed description of hot topics and a provisional list of invitees. There is a discussion and decision on all proposals at the annual meeting of the Scientific Committee in October. According to MFO, acceptance rate is about 50%. The annual decision process and the scheduling of the workshops take about four months.

Organisation: Invitation of participants by the director on suggestion of the organisers one year in advance of the workshop, mutual information of the participants on their individual research via a protected website for the workshop, by research reports or posters during the workshop, and by the display of monographs of the participants on a special exhibition shelf during the workshop.

Annual capacity: About 2200 person weeks (about 75% of MFO's total capacity), with 200 person weeks reserved for Oberwolfach Leibniz Graduate Students.

Publication of results: Publication of extended abstracts of all talks in the book series Oberwolfach Reports (OWR), this forms about 90% of the published abstracts in OWR.

The Mini-Workshop programme

Description: This programme offers 12 week-long Mini-Workshops annually in four reserved weeks, each with about 16 to 17 participants. These workshops are aimed especially at junior researchers, and allow proposals to react to recent developments, since the subjects are fixed only half a year before the workshops take place.

Decision process: Prospective organisers send a proposal to the director, including a detailed description of hot topics and a provisional list of invitees. After a fixed deadline, there is a decision on all proposals with the Scientific Committee by email. As pointed out by the institute, the varying acceptance rate is only about 20 to 30%. The decision process takes about three weeks.

Organisation: Invitation of participants by the director on suggestion of the organisers six months in advance of the workshop, mutual information of the participants on their individual research via a protected website for the workshop, by research reports or posters during the workshop, and by the display of monographs of the participants on a special exhibition shelf during the workshop.

Annual capacity: About 200 person weeks (about 7% of MFO's total capacity).

Publication of results: Publication of extended abstracts of all talks in the book series Oberwolfach Reports (OWR), this forms about 7% of the published abstracts in OWR.

3.2. Longer term research stays: Research in pairs and Oberwolfach Leibniz Fellows

The Research in Pairs programme (RiP)

Description: This programme is aimed at small groups of 2–4 researchers from different places working together at MFO for two to four weeks on a specific project. In 2014, the RiP-Programme was opened to one-week research stays in conjunction with participation in an Oberwolfach Workshop.

Decision process: Applicants send a proposal to the deputy director, including a detailed description of the research projects, their CV and publication lists. The decision process includes members of the Scientific Committee and usually takes about six weeks. According to MFO, the quality of proposals received is usually high and acceptance rate is about 50 to 70%. In 2012, the administration of the programme moved from the University of Kaiserslautern to MFO.

Organisation: After approval, dates of the research stay are fixed according to the free capacity of MFO.

Annual capacity: About 200 person weeks (about 7% of MFO's total capacity).

Publication of results: A pre-publication of results from a Research in Pairs stay is encouraged in the Oberwolfach Preprints (OWP).

Oberwolfach Leibniz Fellows

Description: Focus of this postdoctoral programme is to support excellent junior researchers in an important period of their scientific career by providing ideal working conditions in an international atmosphere. Outstanding junior researchers can apply to carry out a research project, individually or in small groups, for a period from two to three months. The programme was introduced in 2007. Until 2010 it was supported with funds acquired in the Leibniz Competition. In 2012, after a positive evaluation by the Scientific Advisory Board, the programme was permanently installed. In 2014, the duration of a stay in an Oberwolfach Leibniz Fellowship was reduced from six to three months. In order to promote the internationalisation of the programme, MFO has started to cooperate with the European Postdoctoral Institute (EPDI).

Decision process: Applicants send a proposal to the deputy director, including a detailed description of the research project and the intended interaction with the Oberwolfach programmes, their CV and publication lists. The decision process includes members of the Scientific Committee and usually takes about six weeks. The acceptance rate is about 50 to 70%. Here, the annual number of proposals is small and statistical fluctuations of their quality from weak to strong occur more often than in other programmes.

Organisation: After approval, dates of the research stay are fixed according to the free capacity of MFO.

Annual capacity: About 100 person weeks (about 3% of MFO's total capacity).

Publication of results: A pre-publication of results from an OWLF stay is encouraged in the Oberwolfach Preprints (OWP).

3.3. Training activities: Oberwolfach Seminars and Arbeitsgemeinschaft

The Oberwolfach Seminars

Description: The Oberwolfach Seminars are week-long events taking place six times per year. They are organised by leading experts in the field and address postdocs and PhD students from all over the world. They aim at introducing 25 participants to a particularly hot development.

Decision process: The deputy director decides together with the Scientific Committee on suggestions for topics and possible organisers. Suggestions can come from in- or outside the Scientific Committee; there is also the possibility of self-nominations.

Organisation: PhD students and postdocs apply for participation directly. The selection of 25 participants is done by the organisers in cooperation with the deputy director. The participants are invited two to three months in advance of the seminar. Depending on its attractiveness, an Oberwolfach Seminar may be overbooked by up to 100%, leading to correspondingly lower acceptance rates.

Annual capacity: About 150 person weeks (about 5% of MFO's total capacity).

Publication of results: In order to make the Oberwolfach Seminars available to an even larger audience, MFO supports the publication of the lectures within the book series Oberwolfach Seminars (OWS), published in cooperation with Springer-Birkhäuser (Basel). Annually, one or two books appear in OWS.

The Oberwolfach Arbeitsgemeinschaft

Description: The idea of the Arbeitsgemeinschaft (study group) for junior and senior researchers is to learn about a new topic by giving a lecture on it, guided by leading international specialists. The Arbeitsgemeinschaft meets twice per year for one week.

Decision process: The Arbeitsgemeinschaft is supervised by two members of the Scientific Committee, who also coordinate the decision concerning the next topics and organisers in coordination with the running Arbeitsgemeinschaft. They are appointed by the director and the Scientific Committee for a term of three years (with the possibility of re-election) and give regular reports on their work.

Organisation: The selection of 50 participants is done by the organisers in cooperation with the director. The participants are invited two to three months in advance of the seminar. Depending on the attractiveness of the Arbeitsgemeinschaft, it may be overbooked by up to 100%, leading to correspondingly lower acceptance rates.

Annual capacity: About 100 person weeks (about 3% of MFO's total capacity).

Publication of results: Publication of extended abstracts of all talks in the book series Oberwolfach Reports (OWR).

4. Collaboration and networking

Collaboration with universities

MFO collaborates with the **University of Tübingen** that appointed a tenured full professor and director of MFO (delegated on a 50% position, for a first term of five years) in April 2013. The appointment is based on a cooperation agreement regulating also the financial support of the director's research group in Tübingen (cf. chapter 5).

Until 2013, MFO collaborated closely with the **University of Kaiserslautern** as MFO's former director was a professor there. The cooperation continues in the context of the IMAGINARY project.

MFO's scientific administrator was appointed as adjunct professor (*außerplanmäßiger Professor*) at **Johannes Gutenberg University Mainz** in 2011, where he has been associate professor (*Privatdozent*) since 2001.

Between 2013 and 2015, MFO's executive scientists held 76 semester periods per week at universities in Freiburg, Karlsruhe, Mainz, and Tübingen.

Collaboration with other domestic and international institutions

MFO is member of ERCOM (European Research Centers and Organisations on Mathematics, a committee of the EMS) and has participated in the ERCOM-network EPDI (European Postdoctoral Institute) with its programme Oberwolfach Leibniz Fellows.

MFO also coordinates with CIRM (Luminy, France) and BIRS (Banff, Canada and Oaxaca, Mexico) concerning the schedules of their respective scientific meetings.

Since 2014, MFO advises the libraries of the University of Göttingen and Hannover as partner in the DFG-funded information service (*Fachinformationsdienst Mathematik*). Between 2011 and 2013 MFO also collaborated with FIZ Karlsruhe – Leibniz Institute for Information Infrastructure in the context of "swMATH".

MFO hosts the annual training week for the International Mathematical Olympiad (IMO).

5. Staff development and promotion of junior researchers

Staff development and personnel structure

As of December 2015, MFO employed 40 people (28.6 fulltime equivalents; FTE), eight of whom were assigned to "Research and scientific services", including the director (0.5 FTE) and the deputy director (0.2 FTE). Three people worked at the library, 28 people in administration, among them 19 people working as caretakers or housekeeping staff (cf. appendix 4). 3.19 FTE were third-party funded (IMAGINARY-project).

As of December 2008, MFO had employed 29 people. The total number of positions at MFO's personnel plan increased since the last evaluation from 21.8 to 23.8 FTE (including one trainee).

Since the last evaluation in 2009, both the director and the deputy director (after two terms of office) left MFO. In February 2012, a new deputy director took office, in April 2013 a new director. Furthermore, in 2011 an additional position for public relations and for the supervision of the IMAGINARY-project was created. In 2014, the position for

a second scientific assistant for public relations, knowledge transfer and for the supervision of the Oberwolfach publication series was filled.

MFO's staffing plan is binding for non-pay-scale employees as well as for managers (director and deputy director), and expenses for permanent employments may not exceed 50% of the total expenditure.

Promotion of gender equality

Since 2007, MFO has a gender equality plan which is updated every two years. MFO received the "Total Equality Certificate" in 2014. As the institute points out, it offers different kinds of work time models and flexible working hours.

MFO wishes to increase the number of female participants and organisers in its research programmes. According to the institute, this policy is stressed not only in the institute's proposal guidelines and on its website, but also explicitly advertised and discussed in the regular talks of the directors with the organisers of Oberwolfach activities. All in all, the percentage of female researchers coming to Oberwolfach in the period between 2013 and 2015 increased from 11.8% (2013) to 14.7% (2015).

Promotion of junior researchers

The promotion of junior researchers (i.e. doctoral students and postdocs) is considered an important issue and is implemented in various workshop programmes. In particular, as the institute points out, it offers support by grants and special programmes from the following sources: National Science Foundation (US Junior Oberwolfach fellows), Carl Friedrich von Siemens Foundation (Oberwolfach Seminars, 150 person weeks annually), Simons Foundation (Simons Visiting Professors) and by specific grants within the MFO budget for Oberwolfach Leibniz Graduate Students (200 person weeks annually) as well as Oberwolfach Leibniz Fellows (100 person weeks annually). The total annual number of junior researchers with a dedicated grant amounts to 550 person weeks which is 19% of the total annual visitor capacity (2950 person weeks).

Long-term training of PhD students and postdocs by the directors is based at their respective universities. Since the establishment of the director's work group at the University of Tübingen in 2013, two PhD students completed their PhD. One postdoc successfully applied for a Junior Professorship at Tübingen and started in 2015. Between 2013 and 2015, three postdocs and two PhD students have been supported through cooperation between MFO and the University of Tübingen (with MFO financing two to three positions E13/14 for the appointment of postdocs and graduate students, cf. chapter 4).

Vocational training for non-academic staff

Vocational training measures for employees are done on an individual basis. Since 1987, MFO has continually offered an apprenticeship in housekeeping. So far 13 apprentices have successfully completed their training. One trainee will finish in 2016.

6. Quality assurance

Internal quality management

As MFO points out, the multi-stage decision and selection process leading from a proposal to the participation of researchers in one of the Oberwolfach programmes involves both the **Scientific Committee** as well as the directors. This process represents the core of MFO's quality management.

Furthermore, long-term quality assurance at the institute is guaranteed by the Scientific Advisory Board (**SAB**) and by multiple feedback mechanisms. These include the director's weekly **interview talks** with the organisers as well as discussions with participants of the Research in Pairs- and Oberwolfach Leibniz Fellows-programmes. There is also a "book of wishes" for comments.

In 2015, MFO run a **survey** addressing all guests since the last evaluation (2009). From about 10.000 visitors, it received more than 3.200 answered questionnaires. As the institute points out, the numerous individual comments show a very high level of satisfaction in all programmes with an overall satisfaction of 9.63 points (out of 10).

MFO supports the rules of **good scientific practice**. However, there is no official ombudsperson as all guests are working only for a limited time in Oberwolfach.

Quality management by the Scientific Advisory Board and Supervisory Board

The Scientific Advisory Board holds regular annual meetings considering specific subjects and organisational units at MFO. Representatives of the Ministry of Science, Research and Art of Baden-Württemberg as well as of the Federal Ministry of Education and Research (BMBF) may participate in these meetings as guests. The Meetings of the SAB are also attended (with advisory vote) by the MFO's directors and the chairman of the Scientific Committee of the *Gesellschaft für Mathematische Forschung e.V.* (GMF) unless, in a particular case, the SAB decides otherwise.

Implementation of recommendations from the last external evaluation

MFO responded to the central recommendations made by the Senate of the Leibniz Association in the last evaluation (highlighted here in italics, see also Statement of the Senate of the Leibniz Association from 26 November 2009) as follows:

- 1) *"The MFO is extremely successful at selecting topical and relevant mathematical research themes for scientific events. Independent of this, the MFO should consider opening up further within the framework of its established programme portfolio and thus promote multidisciplinary collaboration between different parts of mathematics and – in relevant cases – to bridge the gap to other disciplines to an even larger degree."*

According to the MFO the internationalisation and extension of the Scientific Committee has led to a broadening of expertise, particular in regard to neighbouring sciences. As a result, the Scientific Committee can evaluate and solicit for interdisciplinary proposals much better. As remarked by the Scientific Advisory Board, interdisciplinary workshops have reached a healthy share of 20% in 2011 and further increased in the following years even though there is room for still more connections to other disciplines. While strongly encouraging interdisciplinary proposals with other fields, the Directors and the Scientific Committee want to continue the strategy of accepting

only workshops that promise progress in mathematical methods rather than just applications of known mathematics in other fields.

- 2) *“In contrast to current practice, the MFO is encouraged to publicise its portfolio of scientific programmes to a greater extent by means of targeted calls for applications also directed at circles outside the established mathematics community and thus exploit still further existing user potential.”*

This recommendation has been addressed by the biannual newsletter that was introduced after the last evaluation reaching between 7000 and 8000 recipients, by targeted annual poster mailings to 500 international institutions and by continuous improvements of the MFO website (cf. chapter 2).

- 3) *“Documentation on programme execution, e.g. with regard to scientific qualifications or frequency of involvement in MFO programmes, should be developed. The MFO should utilise this type of information in a targeted way to steer its programmes and in order to avoid recurrences.”*

MFO has installed a home-grown data base “owconf” (Oberwolfach Conference Management Software) allowing for statistical evaluations of all research programmes. As MFO points out, the Scientific Committee and directors make frequent use of these data to monitor overall trends in research programmes while taking care that statistical parameters or quotas do not override judgements based on scientific excellence.

- 4) *“As a general rule, the MFO’s policy is that Oberwolfach Leibniz Fellows should stay at the MFO for a maximum of three months, and this is welcomed. The institute should strengthen its efforts to ensure that fellows participate in parallel events during their stay at the MFO. In this programme, competition for the available places should be increased yet further by appropriate measures. Due to its strategic significance within the internationally focused promotion of junior scientists at the MFO, the institute should perpetuate this programme. So far it has been financed by third-party funding, but it has a very convincing basic structure which means it should be permanently rooted in the institute’s budget.”*

The Leibniz Fellow programme has been moved to the MFO core budget as recommended. Additional applications have been attracted through the biannual newsletter introduced after the evaluation, targeted poster mailings and by participation in the European Postdoctoral Institute (EPDI) of the European Mathematical Society. The limitation to three months has been implemented (cf. chapter 2).

- 5) *“The MFO is encouraged to extend public access to the research results produced at the institute and to strengthen further the appropriate indexing of these results.”*

All publications of the Institute except the Birkhäuser books on “Oberwolfach Seminars” are freely available online (cf. chapter 2).

- 6) *“For the stabilisation of the institute’s IT-infrastructure, the MFO should implement a data security concept and also improve the spatial as well as the conceptual backup adequately on a medium-term. Moreover the MFO is recommended to implement a co-operative data backup with a neighbouring institution (e.g. university).”*

A security concept has been implemented as recommended.

- 7) *“The Scientific Committee’s membership is limited to four years, with the option of being reappointed once. The Committee co-opts new members to reconstitute itself and is appointed by the Board of the GMF. Members of the Scientific Committee have the right of*

proposal. In addition, the MFO is expected to request further proposals for membership from other organisations and institutions, wherever possible from abroad or from international associations."

The GMF has implemented this recommendation by inviting the German Mathematical Society (DMV) and the European Mathematical Society (EMS) as institutional members of the GMF, where they can make suggestions for future members of the Scientific Committee.

- 8) *"It is necessary to plan for the employment of a further scientific assistant at the MFO. This is a response to the large increase in the workload, particularly in the areas of public outreach and knowledge transfer (exhibitions, museum work), the administration and development of the extended programme portfolio (Oberwolfach Leibniz Fellows, Oberwolfach Graduate Students), as well as the editorial supervision of the print series which have been newly created at Oberwolfach, for instance the Preprints. To cope with the increased tasks (library extension and additional rooms in the bungalows) a further member of staff should be provided in the domestic service area."*

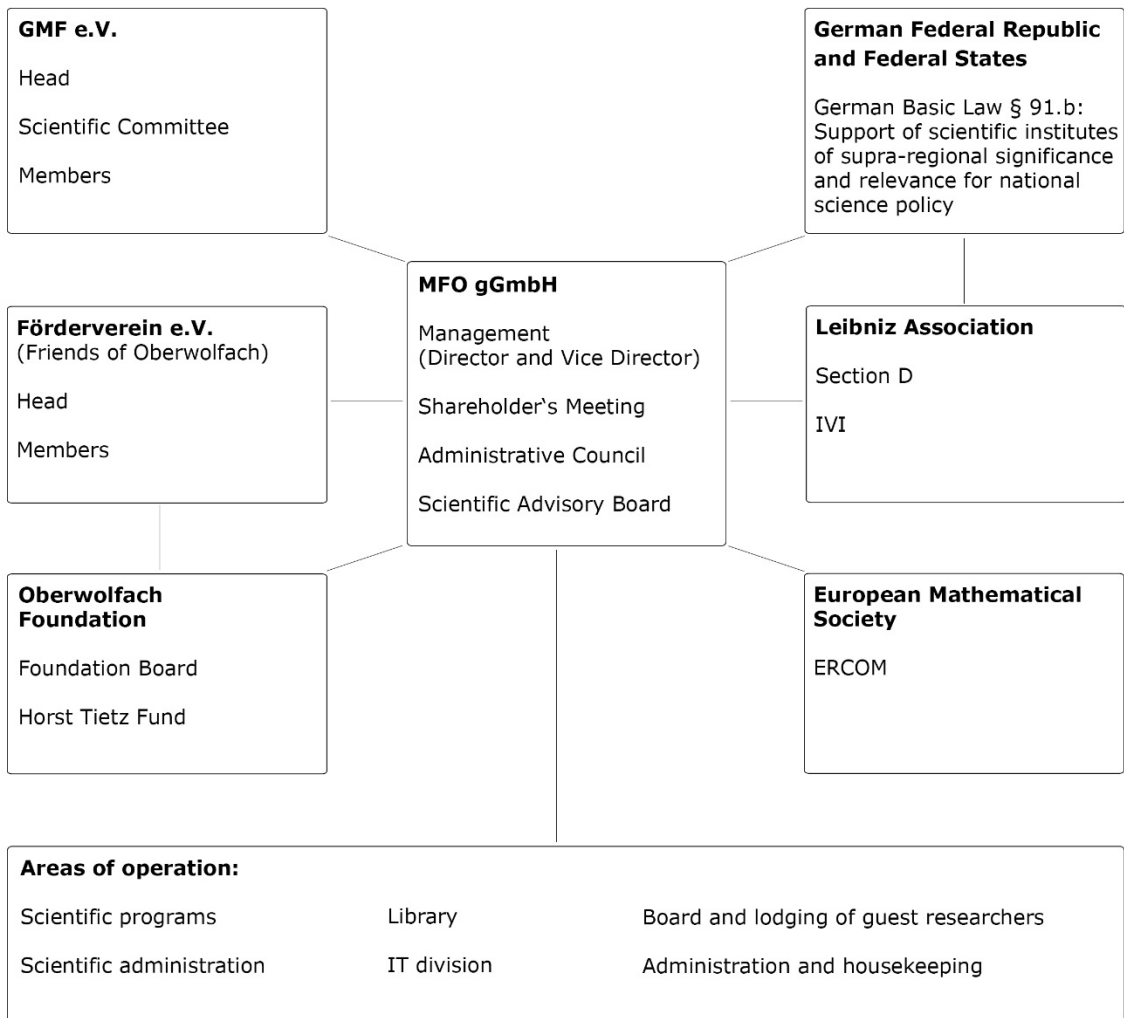
The recommendation has been implemented with the appointment of a second scientific assistant for public relations, knowledge transfer and for the supervision of the Oberwolfach publication series. Furthermore, an additional member of staff in the domestic service area has been appointed (cf. chapter 5).

- 9) *"At the end of his normal term of office this year, the present Director is taking up a senior professorship which, according to the current planning of the Federal State of Rhineland-Palatinate, is due to last until 2012. The propositions by the Scientific Advisory Board to refill the post of Director are convincing. In contrast to the past, the new Director should not only have a secondary appointment at the MFO for up to 20% of his time. Rather, in view of the increased workload in recent years, it will be necessary to increase the Director's activity at the MFO to 50%. The post could be filled, as in the past, by releasing a scientist from a neighbouring (in the broadest sense) university to work at the MFO. However, the MFO should also consider the path of making a joint appointment with a neighbouring university willing to collaborate at home or abroad. Implementation of the new structure for the position of Director should be undertaken and resolved as rapidly as possible. In a second stage, the post of Director can then be filled. With accompanying measures the MFO should ensure that these processes are immediately addressed and are completed in time by the end of the present Director's extended term of office in 2012. Irrespective of the new structure for the position of Director, a 20% secondary appointment for the post of Deputy Director will still be necessary in future."*

The recommendation has been fully implemented (cf. chapter 4).

Appendix 1

Organisational Chart



Appendix 2

Publications and Scientific Programme

	Period		
	2013	2014	2015
Total number of publications			
<i>Oberwolfach Reports</i> ¹	4	4	4
<i>Oberwolfach Seminars</i>	–	2	–
<i>Oberwolfach Preprints</i>	28	19	17
<i>Snapshots of modern mathematics from Oberwolfach</i> ²	–	10	17

Subdivision	Programme	Number / year	Person Weeks / year	Rate
1	Workshops	41	2,200	75%
1	Mini-Workshops	12	200	7%
2	Research in Pairs	100	200	7%
2	Oberwolfach Leibniz Fellows	10	100	3%
3	Oberwolfach Seminars	6	150	5%
3	Arbeitsgemeinschaft	2	100	3%
Total		171	2,950	100%

¹ Approximately 3.200 pages annually, containing approximately 25 abstracts/week.

² The series "Snapshots of modern mathematics from Oberwolfach" was established in 2013.

Appendix 3 Revenue and Expenditure

Revenue		2013			2014			2015 ¹⁾		
		K€	% ²⁾	% ³⁾	K€	% ²⁾	% ³⁾	K€	% ²⁾	% ³⁾
Total revenue (sum of I., II. and III.; excluding DFG fees)		4.037			4.158			4.609		
I.	Revenue (sum of I.1., I.2. and I.3)	3.676	100%		3.677	100%		3.896	100%	
1.	<u>INSTITUTIONAL FUNDING (EXCLUDING CONSTRUCTION PROJECTS AND ACQUISITION OF PROPERTY)</u>	2.501	68%		2.922	79%		3.054	78%	
1.1	Institutional funding (excluding construction projects and acquisition of property) by Federal and <i>Länder</i> governments according to AV-WGL	2.501			2.922			3.054		
1.2	Institutional funding (excluding construction projects and acquisition of property) not received in accordance with AV-WGL	–			–			–		
2.	<u>REVENUE FROM PROJECT GRANTS</u>	1.035	28%	100%	623	17%	100%	707	18%	100%
2.1	DFG	62		6%	125		20%	–		–
2.2	Leibniz Association (competitive procedure)	363		35%	–		–	–		–
2.3	Federal, <i>Länder</i> governments	–		–	–		–	–		–
2.4	EU	–		–	–		–	–		–
2.5	Industry	–		–	–		–	–		–
2.6	Foundations	610		59%	498		80%	707		100%
3.	<u>REVENUE FROM SERVICES</u>	140	4%		132	4%		135	4%	
3.1	Revenue from commissioned work	–			–			–		
3.2	Revenue from publications	30			27			31		
3.3	Revenue from exploitation of intellectual property for which the institution holds industrial property rights (patents, utility models etc.)	–			–			–		
3.4	Revenue from exploitation of intellectual property without industrial property rights	–			–			–		
3.5	Revenue from other services	110			105			104		
II.	Miscellaneous revenue (e.g. membership fees, donations, rental income, funds drawn from reserves)	27			401			713		
III.	Revenue for construction projects (institutional funding by Federal and <i>Länder</i> governments, EU structural funds, etc.)	334			80			–		
Expenditures		T€			T€			T€		
Expenditures (excluding DFG fees)		4.037			4.158			4.609		
1.	Personnel	1.451			1.504			1.772		
2.	Material expenses	319			332			340		
2.1	<i>Proportion of these expenditures used for registering industrial property rights (patents, utility models etc.)</i>	–			–			–		
3.	Equipment investments	55			87			54		
4.	Construction projects, acquisition of property	230			486			183		
5.	Other operating expenses	1.565			1.050			1.150		
6.	Other expenses	417			699			1.120		
DFG fees (if paid for the institution – 2.5% of revenue from institutional funding)		–			–			–		

¹⁾ Preliminary data

²⁾ Figures I.1, I.2 and I.3 add up to 100%.

³⁾ Figures I.2.1 to I.2.6 add up to 100%..

Appendix 4

Staff

(Basic financing and third-party funding / proportion of women (as of December 2015))

	Full time equivalents		Employees		Female employees	
	Total	on third-party funding	Total	on temporary contracts	Total	on temporary contracts
	Number	Percent	Number	Percent	Number	Percent
Research and scientific services	4,9	65%	8	87,5%	2	100%
Professors / Direct. (C4, W3 or equivalent)	0,7	–	2	100%	–	–
Academic staff in executive positions (A15, A16, E15 or equivalent)	1	–	1	–	–	–
Scientists in non-executive positions (A13, A14, E13, E14 or equivalent)	3,2	100%	5	100%	2	100%
Service positions	1,7	–	3			
Library (E9 to E12, upper-mid-level service)	0,5	–	1			
Library (E5 to E8, mid-level service)	1,2	–	2			
Administration	21,1	2,4%	28			
Head of the administration	1	–	1			
Staff positions (from E13, senior service)	3	–	3			
Internal administration (E5 to E9, mid-level service)	4,1	12%	5			
Building Service (E5 to E9)	3	–	3			
Building service (E1 to E4)	10	–	16			
Trainees	1	–	1			

Annex B: Evaluation Report

Oberwolfach Research Institute for Mathematics (MFO)

Contents

1. Summary and main recommendations	B-2
2. General concept and profile	B-3
3. MFO programme lines	B-7
4. Staff at MFO	B-9
5. Collaboration by MFO staff	B-10
6. Quality assurance	B-11

Appendix:

Members of review board and guests; representatives of collaborative partners

1. Summary and main recommendations

The Oberwolfach Research Institute for Mathematics (MFO) is an excellent “social research infrastructure” in mathematics with the highest international reputation. Its core mission is to bring together leading national and international mathematicians to share expertise in a concentrated, intensive fashion and thus to generate new ideas and research activities. For this purpose, it runs various kinds of events of differing length with various numbers of participants. There is a competitive procedure whereby mathematics researchers can submit an application, including, amongst other things, the topic and a provisional list of participants, to conduct an event at MFO. Applications are evaluated and approved by the MFO Directors and the highly efficient Scientific Committee (SC). The latter is composed of 20 to 25 internationally-renowned mathematicians and is the central body determining MFO’s activities. The selection process is well organised and efficient. The success of the institute, which was founded in 1944, is evidenced by the fact that there are now various institutions around the world modelled on MFO.

MFO’s various programme lines are arranged in three sub-divisions. Sub-division 1 (Short-term research stays), comprising the internationally-renowned Workshop Programme, is rated as “excellent”. In Sub-division 2 (Long-term research stays), one programme line is also rated as “excellent” and the second as “very good”. Subdivision 3 (Training activities for junior scientists) is also rated as “excellent”.

One of the indicators for the scientific quality of MFO’s events is the fact that leading mathematicians in the respective specialist fields regularly participate in them. Two-thirds of all Fields Medallists have visited the institute. MFO’s events rank extremely highly with the national and international mathematics research community (70 % of participants come from abroad). Many important ideas and entire research directions originated at MFO. There is an appropriate balance between the number of senior scientists and junior scientists in the groups of participants attending MFO’s programmes. However, the proportion of women amongst programme participants and organisers, in the range of 12 to 15 per cent, is still low.

Research results obtained, inspired and influenced by MFO’s programmes are typically published by the scientists’ own institutions. There are many publications with an explicit reference to Oberwolfach and its programmes. Furthermore, MFO produces three publication series of its own, which are well-tailored to its programmes, and in which the contents of the various events are published.

Both the Director of MFO and the entire management do an outstanding job. This is also true of the administration, including those working in the library and the housekeeping staff. MFO employs its resources with great efficiency and is thus able to hold events without difficulty 50 weeks a year. MFO’s Scientific Advisory Board (SAB) also works very convincingly.

Special consideration should be given to the following main recommendations in the evaluation report (highlighted in **bold face** in the text):

General concept and profile (Chapter 2):

1. MFO's publications, reports, and programmes are well communicated to previous year's participants and the longtime friends of the MFO. The institute should, however, continue to improve the communication of the valuable opportunities it offers, making them available to the entire international mathematical community, including an enhanced online presence, and wider calls for proposals to its weekly workshops and other programmes. This will also further enhance MFO's global visibility.
2. The proportion of women amongst programme participants and organisers has essentially stayed the same since the last evaluation, and still ranges between 12 and 15 per cent. The gender imbalance observed in mathematics is international, and efforts are being made at schools, universities and institutes to address this issue. Given that MFO is an institution with an outstanding international reputation, it should aspire to lead the way in this respect, too. It should therefore make even greater efforts to implement concrete measures to increase the proportion of women, as has also been recommended by the Scientific Advisory Board.

Quality assurance (Chapter 6):

3. The members of the Scientific Committee (SC) are elected at the suggestion of the SC by the board of the *Gesellschaft für Mathematische Forschung e. V.* (GMF, see Status Report, p. A-2 for the MFO committees) for a four-year term with a maximum of two terms of office. This limitation should also pertain to the Chair and Deputy Chair who at present can be re-elected an unlimited number of times. Furthermore, the proportion of women on the Scientific Committee is currently only 20 per cent and should be increased, as has successfully been accomplished with the current composition of the Scientific Advisory Board, 50 per cent of whom are women.

2. General concept and profile

Development of the institution since the last evaluation

The Oberwolfach Research Institute for Mathematics (MFO) is an excellent "social research infrastructure" in mathematics with the highest international reputation. It promotes scientific dialogue in the discipline by bringing together leading national and international mathematicians to share expertise in a concentrated, intensive fashion and thus helps to generate new ideas and research activities. For this purpose, it runs various kinds of events in the three sub-divisions (Short term research stays, Long term research stays and Training activities for junior scientists). There is a competitive procedure whereby mathematics researchers can submit an application to conduct an event at MFO.

MFO responded convincingly to the recommendations made at the last evaluation (see Chapter 6) and has developed very well since. Following the retirement of both the Director and the Deputy Director after two periods in office respectively, in 2012 and 2013, two eminent scientists were recruited for these positions. As recommended at the last evaluation, the Director, who holds a joint appointment with the University of Tübingen,

now spends 50 per cent of his working hours at MFO (and not just 20 per cent as was previously the case).

Under the new leadership, MFO's activities have been continued successfully and some logical modifications have been made to the programmes "Research in Pairs" and "Oberwolfach Leibniz Fellows" in agreement with the Scientific Advisory Board (see Chapter 3). The path chosen in creating a spin-off for the project IMAGINARY (see below) was strategically well-thought out and meaningful.

Applications are evaluated and approved not only by the MFO Directors but also by the highly efficient Scientific Committee (SC). It is composed of 20 to 25 internationally-renowned mathematicians and is the central body determining MFO's activities. The selection process is well organised and efficient.

One of the indicators for the scientific quality of MFO's events is the fact that leading mathematicians in the respective specialist fields regularly participate in them. Two-thirds of all Fields Medallists have visited the institute. MFO's events rank extremely highly with the national and international mathematics research community (70 % of participants come from abroad). Many important ideas and entire research directions originated at MFO. There is an appropriate balance between the number of senior scientists and junior scientists in the groups of participants attending MFO's programmes. For nearly all programmes, there are exclusive grants for junior researchers (approx. 550 places, 19 % of total capacity). Furthermore, many junior researchers visit MFO even without these grants. However, the proportion of women amongst programme participants and organisers, in the range of 12 to 15 per cent, is still low.

The organisational operation of the different events by MFO staff, which are held during 50 weeks of the year, is excellent. This is also demonstrated by a survey MFO conducted amongst its visitors in 2015. More than 3,200 of the 10,000 visitors surveyed answered the questionnaires. On a scale from 1 (poor) to 10 (excellent), the average overall satisfaction rate amongst MFO's guests was 9.63.

Strategic work planning for the next few years

The programmes of the MFO are highly successful, and therefore do not warrant radical changes. However, there are two areas, where the institute could improve its already commendable record:

MFO's publications, reports, and programmes are well communicated to previous year's participants and the longtime friends of the MFO. The institute should, however, continue to improve the communication of the valuable opportunities it offers, making them available to the entire international mathematical community, including an enhanced online presence, and wider calls for proposals to its weekly workshops and other programmes. This will also further enhance MFO's global visibility.

The proportion of women amongst programme participants and organisers has essentially stayed the same since the last evaluation, and still ranges between 12 and 15 per cent. The gender imbalance observed in mathematics is international,

and efforts are being made at schools, universities and institutes to address this issue. Given that MFO is an institution with an outstanding international reputation, it should aspire to lead the way in this respect, too. It should therefore make even greater efforts to implement concrete measures to increase the proportion of women, as has also been recommended by the Scientific Advisory Board. Various measures are conceivable, considering that they have already proved effective at other institutions. For example, like it is already mandatory, that at least one foreign researcher has to be involved in the organisation of the respective events, it could also become mandatory, that at least one woman mathematician has to be involved. Moreover, at MFO it is usual that when fewer than six women are registered for workshops (usually 50 participants), the Director contacts the organisers to discuss how more female participants could be recruited. MFO could consider raising this lower bound of six women to a higher number. Furthermore, the MFO could consider introducing travel funds to support women participants or introducing workshops only for women. MFO should consult its various committees, while considering whether more suitable and effective measures could be found in order to improve the situation.

Results of work

Research

MFO's various programme lines are arranged in three sub-divisions. Sub-division 1 (Short-term research stays) comprises the internationally-renowned Workshop Programme and is rated as "excellent". In Sub-division 2 (Long-term research stays), one programme line is also rated as "excellent" and the second as "very good". Subdivision 3 (Training activities for junior scientists) is also rated as "excellent".

Research results obtained, inspired and influenced by MFO's programmes are typically published by the scientists' own institutions. There are many publications with an explicit reference to Oberwolfach, for example to open questions discussed at workshops or to conference reports edited by the organisers of the workshops independently. Searching for "Oberwolfach" on MathSciNet results in more than 6,000 publication hits.

Furthermore, MFO produces three publication series of its own, which are well-tailored to its programmes, and in which the contents of the various events are published. The *Oberwolfach Preprints* contain the results obtained by visiting researchers in the longer-term programmes. In addition, MFO publishes the *Oberwolfach Reports*, containing extended abstracts of the talks in the "Workshops", "Mini-Workshops" and "Arbeitsgemeinschaften". With the book series *Oberwolfach Seminars* by Springer-Birkhäuser, MFO supports the publication of lecture notes to make the content of the "Oberwolfach Seminars" available to a larger audience.

Scientific services and infrastructure tasks

A vital ingredient of MFO's outstanding working conditions is its library, which is one of the best mathematics libraries in the world. Participants in all programmes make great use of its printed and electronic resources. The MFO library staff provides continuous professional advice on finding sources.

Other MFO infrastructures include the “Oberwolfach Photo Collection”, which holds almost 19,000 digital photographs of international mathematicians, and the “Oberwolfach Digital Archive” (ODA), which offers open access to all MFO’s books of abstracts and guest books of the last 70 years. ODA was facilitated by DFG funding.

Finally, a mention should be given to the data base “Oberwolfach References on Mathematical Software” which provides appropriate methods and tools for localising, cataloguing and reviewing mathematical software.

Academic events and public relations

It is welcomed that MFO grants two prizes for young mathematicians. The “Oberwolfach Prize” is awarded every three years for excellent achievements by young researchers with differing mathematical research directions. The “John Todd Fellowship” is also granted every three years to excellent young mathematicians working in numerical analysis. In the case of both prizes, MFO should try to reach an even wider circle of senior scientists when calling for candidates to be proposed.

Raising public awareness of MFO and mathematical research amongst the general public is achieved with three very successful main actions:

[1] The newly established project “Snapshots of modern mathematics from Oberwolfach” is highly promising and already a success. In the context of this project, programme participants write essays on current mathematical topics that are published via IMAGINARY (see below) and MFO’s website. They are designed for maths teachers, science journalists, undergraduates, advanced high school students and other interested parties.

[2] The aim of the platform “IMAGINARY – open mathematics” is to provide space for the presentation and development of mathematics exhibitions. All contents on IMAGINARY are available under free licence and can thus be reproduced and used for individual exhibitions and events. The project is supported by the Klaus Tschira Foundation. Up until the end of 2015, five third-party funded academic staff have been employed at MFO for this project. Due to the huge success of IMAGINARY, the workload has increased considerably in the last few years. It is therefore welcomed that MFO has successfully acquired funding under the Leibniz Association Competition from 2016 to drive the creation of an IMAGINARY spin-off, whereby MFO would be a future collaborative partner.

[3] Finally, in collaboration with the Oberwolfach local authority and the “Verein der Freunde von Mineralien und Bergbau Oberwolfach e. V.”, the Museum for Minerals and Mathematics Oberwolfach (MiMa) was opened in 2010. MiMa is visited by more than 6,000 people annually.

Appropriateness of facilities, equipment, and staffing

For MFO’s portfolio, institutional funding is adequate. In 2015, it was approximately €3.05 million. The increases in institutional funding that have been granted since the last evaluation have been strategically well used. Two projects, which were acquired under the Leibniz Association Competition (“Oberwolfach Leibniz Fellows” and “Oberwolfach Leibniz Graduate Students”, see Chapter 3), have been continued. The MFO Di-

rector's working hours have also been increased from 20 to 50 per cent. Furthermore, two new scientific assistants have been employed and necessary improvements in facilities and equipment have been carried out.

In 2015, MFO was able to attract €0.707 million in third-party funding from foundations such as the Volkswagen Foundation, Carl Friedrich von Siemens Foundation, Simons Foundation and the Klaus Tschira Foundation. It is remarkable that MFO also receives support from the United States' National Science Foundation so that junior researchers from the United States can regularly visit the institute. Moreover, MFO has successfully raised €0.713 million in donations.

Due to its task structure, the institute only has very little scope for acquiring competitive third-party funding. It is therefore all the more pleasing that, on four occasions since 2007, MFO acquired a project under the Leibniz Association Competition. It was also granted DFG funding from 2011 to 2013 to create a unified electronic library portal.

MFO's buildings and facilities are appropriate to its needs. They encompass a conference and library building, a guest house including a guest office, dining hall and housekeeping sector, and bungalows for guests.

MFO provides an IT infrastructure for administrators, staff and visiting scientists. The IT group offers excellent support for all participants and maintains the database for the entire visitors' programme. It also provides the web interface for the evaluation of workshops by the Scientific Committee, a crucial task against the backdrop of 25 committee members and up to 80 workshop applications to be evaluated each year.

3. MFO programme lines

3.1 Short-term research stays: Oberwolfach Workshops and Mini-Workshops

The outstanding "Oberwolfach Workshops" are the traditional core of MFO's activities and are highly respected in the international scientific community. They account for some 75 per cent of MFO's overall capacity. Every year, 40 one-week workshops are held at which around 50 participants present and discuss the most recent results and methods. Based on this, new research projects are very often initiated, as well.

Anyone teaching in higher education can submit an application together with other researchers to organize a workshop. The selection process is convincing and well organised. The members of the Scientific Committee (SC) can view all the applications on a dedicated website. The Director collates and summarises the assessments and preliminary rankings drawn up by the SC. On this basis, the SC meets once a year in the autumn to come to a final decision on the workshop programme for the year after next. The Director subsequently informs all applicants of the decision and provides feedback as well as the SC's recommendations.

The number of applications to run workshops regularly outstrips available capacity so that only the best proposals successfully pass the selection process. In the last few years, the average approval rate was 50 per cent. It is welcomed that each organising committee submitting an application must include at least one individual from abroad in order

to guarantee internationality. It should be examined whether a regulation of this kind could be introduced with regard to women (see Chapter 5).

The “Oberwolfach-Workshops” are well complemented by other actions. In the context of “Oberwolfach Leibniz Graduate Students”, every year, some 200 outstanding doctoral candidates are given the opportunity to participate in workshops and thus make contact with excellent, internationally-acclaimed researchers. This action has its roots in a project that was acquired under the Leibniz Association Competition in 2009 and later put on a permanent footing by MFO.

Thanks to funding from the Simons Foundation, every year since 2014, up to 40 workshop participants from outside of Europe have been offered the opportunity to follow their visit to Oberwolfach by a research stay at a European university for a period of up to two weeks (“Simons Visiting Professors”).

In addition to the “Oberwolfach-Workshops”, every year, four weeks are reserved for the equally prestigious and highly-coveted “Oberwolfach Mini-Workshops”. During each of these four weeks, three parallel workshops with 16 or 17 participants are held. They account for some seven per cent of MFO’s entire capacity. The mini-workshops ideally complement the core workshops. They facilitate, amongst other things, fast reaction to current developments as applications can be submitted much closer to the event (approx. six months in advance). The mini-workshops focus to an even greater extent on initiating new research projects. The competition for mini-workshops is stiffer than for workshops: only 20 to 30 per cent of applications can be approved annually.

Decisions on the mini-workshops are again all based on proposals that are evaluated by the Scientific Committee. It is convincing that, in this case, the evaluation is conducted by email to ensure a fast turnover rate between application and decision.

Subdivision 1 (Short-term research stays) is rated as “excellent”.

3.2 Longer-term research stays: Research in Pairs and Oberwolfach Leibniz Fellows

3.2.1 Research in Pairs

The outstanding programme “Research in Pairs” (RiP) also has a long tradition at MFO. In the meantime, similar programmes have been adopted by comparable institutions abroad. The selection procedure is the same as for the mini-workshops. Under the RiP Programme, two to a maximum of four researchers from different institutions are given the opportunity to work together on a research project of their own choosing for two to four weeks (in exceptional cases up to three months). This brings together smaller groups who can conduct joint research work in a stimulating environment. It is welcomed that since 2014, workshop participants who are already in Oberwolfach are able to extend their stay by one to two weeks by becoming an RiP group.

The Research in Pairs Programme is rated as “excellent”.

3.2.2. Oberwolfach Leibniz Fellows

Under the programme “Oberwolfach Leibniz Fellows” (OWLF), excellent post-doctoral researchers (up to five years after completing their doctorates) can apply individually or in small groups to conduct a research project at Oberwolfach over a period of two to three months. The selection procedure is the same as for the mini-workshops. The OWLF programme was acquired in 2007 under the Leibniz Association Competition.

It is welcomed that in line with recommendations made at the last evaluation and by the Scientific Advisory Board, the programme has on the one hand been placed on a permanent footing (2010) whilst, on the other hand, the maximum duration of the stay at MFO has been reduced from six months to three (2014). It is also to be welcomed that MFO is cooperating with the European Postdoctoral Institute (EPDI) to make the programme even more international. In contrast to the other MFO programmes, OWLF is still relatively unknown and thus attracts fewer applications. MFO should promote the OWLF programme more proactively in order to increase the competition for the places available.

The Oberwolfach Leibniz Fellow Programme is rated as “very good”.

3.3 Training activities: Oberwolfach Seminars and *Arbeitsgemeinschaft*

The “Oberwolfach Seminars” have proved to be an excellent tool for introducing doctoral candidates and postdocs from Europe and overseas to challenging fields under the guidance of eminent experts. During three weeks of the year, two parallel seminars with around 25 participants are held each week. The teams organising the “Oberwolfach Seminars” are invited to do so by the Scientific Committee based on suggestions made by its members and the wider mathematical community.

At the six-monthly “Oberwolfach *Arbeitsgemeinschaft*” continuing education is conducted at the highest level. Some 45 to 50 predominantly postdocs and professors hold a lecture for which they embark on a topical area which is new to them. This model has proved to be very productive and, in the format chosen by MFO, is quite unique. The topics for the *Arbeitsgemeinschaft* are determined in discussions between participants of previous *Arbeitsgemeinschaften* and the two coordinators representing the Scientific Committee. One of the current coordinators is a Fields medallist.

Subdivision 3 (Training activities) is rated as “excellent”.

4. Staff at MFO

Staff development and personnel structure

MFO’s personnel structure accords with its mission and is appropriate (see Status Report, Appendix 4). On 31 December 2015, the Director (0.5 FTE), the Deputy Director (0.2 FTE) and the Scientific Administrator (1 FTE) comprised the Research and Scientific Services sector. Five additional members of staff were being financed by third-party funding in the project IMAGINARY until the end of 2015 (see Chapter 2). Three people

work in the library, 28 in administration, including 19 caretakers and housekeeping staff. MFO manages to deploy its staff very efficiently.

It is welcomed that MFO has created and filled two new positions. In 2011, an additional position for public relations and for the supervision of the IMAGINARY project was created. In 2014, a scientific assistant for knowledge transfer and for the supervision of the Oberwolfach publication series was appointed.

Promotion of gender equality

MFO makes efforts to increase the proportion of women on its academic staff. In 2007, for example, it introduced a gender equality plan that is updated every two years. In 2014, it received the "Total Equality Certificate". In addition, the institute offers flexible work models and working hours. It is welcomed that the newly-created position for a Scientific Assistant (see above) has been filled with a woman. The three leadership positions (Director, Deputy Director and Scientific Administrator) are held by men. The forthcoming appointment of a new Deputy Director in 2019 might offer an opportunity to appoint a woman to senior management level.

Vocational training for non-academic staff

It is welcomed that since 1987, MFO has continually offered an apprenticeship in house-keeping. So far, 13 apprentices have successfully completed their training. One trainee will finish in 2016. Vocational training measures for employees are conducted on an individual basis. In 2015, members of the non-academic staff attended 13 workshops, training seminars or courses.

5. Collaboration by MFO staff

Collaboration with universities

The Director, who was appointed in 2013, holds a professorship at the University of Tübingen. He heads a research group there and is released to spend 50 per cent of his working hours at MFO. This status implements a recommendation made at the last evaluation.

The former Director spent 20 per cent of his time working for MFO and was a professor at the University of Kaiserslautern. Cooperation continues with this university in the context of the IMAGINARY project (see Chapter 2)

As recommended at the last evaluation, the 20 per cent model has been retained in the case of the Deputy Director. The current incumbent, who has held the position since 2012, is a professor at the University of Freiburg.

MFO collaborates well with the Universities of Tübingen, Freiburg, Mainz and Karlsruhe through the teaching conducted by its leading scientists.

Collaboration with other domestic institutions

MFO advises the Göttingen State and University Library and the TIB – Leibniz Information Centre for Science and Technology University Library on their joint DFG-funded in-

formation service (*Fachinformationsdienst Mathematik*). Between 2011 and 2013, MFO also collaborated with FIZ Karlsruhe – Leibniz Institute for Information Infrastructure in the context of the project “swMATH”. In other respects, MFO is also well-integrated in the Leibniz Association, for example as a member of the Leibniz Network “Mathematical Modelling and Simulation”.

Collaboration with international institutions

It is welcomed that MFO coordinates with similar international institutions such as CIRM (Luminy, France) and the Banff International Research Station for Mathematical Innovation and Discovery (Banff, Canada and Oaxaca, Mexico) when planning its activities.

In the context of “Oberwolfach Leibniz Fellows” it also cooperates with the European Postdoctoral Institute (EPDI), a network of European Research Centers and Organisations on Mathematics (ERCOM), of which MFO is a member. ERCOM is a committee of the European Mathematical Society.

6. Quality assurance

Quality management of programme development

MFO’s quality management is convincing. It is essentially founded on the selection process for the various programmes. The Scientific Committee (SC) evaluates the applications (together with the directors) and subsequently selects the best (for details on the selection procedure, see Chapter 3). The SC is composed of some 20 to 25 internationally renowned mathematicians who reflect the entire spectrum of scientific themes represented at MFO. **The members of the Scientific Committee (SC) are elected at the suggestion of the SC by the board of the *Gesellschaft für Mathematische Forschung e. V.* (GMF, see Status Report, p. A-2 for the MFO committees) for a four-year term with a maximum of two terms of office. This limitation should also pertain to the Chair and Deputy Chair who at present can be re-elected an unlimited number of times. Furthermore, the proportion of women on the Scientific Committee is currently only 20 per cent and should be increased, as has successfully been accomplished with the current composition of the Scientific Advisory Board, 50 per cent of whom are women.**

Both the Director of MFO and the entire management do an outstanding job. This is also true of the administration, including those working in the library and the housekeeping staff. MFO employs its resources with great efficiency and is thus able to hold events without difficulty 50 weeks a year.

Quality management by the Scientific Advisory Board and Supervisory Board

MFO’s Scientific Advisory Board (SAB) also does an excellent job. At its meetings, it appraises the institute’s work critically and constructively. During its board meetings the SAB had discussed and expressed its opinion on nearly all of the few critical points made by the review board, particularly gender equality. In this respect, the SAB itself is exem-

plary: the proportion of women on the board has been increased to 50 per cent. The Supervisory Board also functions convincingly.

Implementation of recommendations from the last external evaluation

MFO responded very convincingly to the central recommendations made by the Senate of the Leibniz Association in the last evaluation (see also Statement of the Senate of the Leibniz Association of 26 November 2009):

- 1) Promotion of multidisciplinary collaboration between different parts of mathematics and – in relevant cases – bridging the gap to other disciplines to an even larger degree: Interdisciplinary workshops have reached a healthy share.
- 2) Advertisement of MFO's portfolio of scientific programmes to a greater extent by means of targeted calls for applications also directed at circles outside of the established mathematics community: Even though MFO has introduced a biannual news letter reaching up to 8,000 recipients and sends targeted annual poster mailings to 500 international institutions, there is room for further improvement (see Chapter 2).
- 3) Documentation on programme execution and utilisation of this type of information in a targeted way to steer MFO's programmes and in order to avoid recurrences: MFO has installed the home-grown Oberwolfach Conference Management Software allowing for statistical evaluations of all programmes. It is welcomed that MFO quantitatively monitors overall trends in its programmes whilst, at the same time, taking care that statistical parameters do not override judgements based on scientific quality.
- 4) Due to its very convincing structure and function, when funding comes to an end, the Programme "Oberwolfach Leibniz Fellows" (OWLF) should be continued on a permanent basis in the context of the Leibniz Association Competition in the form of institutional funding. Competition for places on the programme should be increased by appropriate measures and the duration of the stay, as planned by MFO, should be reduced to three months: The funding of the OWLF Programme has been moved to the core budget and its limitation to three months has been implemented. At present, however, the relative lack of applications means the competition for places is still too weak (see Chapter 3).
- 5) Public access to the research results produced at MFO and further strengthening the appropriate indexing of these results: All the institute's publications, except the Birkhäuser books on "Oberwolfach Seminars", are freely available online.
- 6) A data security concept has been implemented.
- 7) Requesting further proposals for membership of the Scientific Committee from other organisations and institutions than the *Gesellschaft für Mathematische Forschung* (GMF), wherever possible from abroad or from international associations: MFO has addressed this recommendation by inviting the German Mathematical Society (DMV) and the European Mathematical Society (EMS) to be institutional members of the GMF where they can make suggestions for future members of MFO's Scientific Committee.

- 8) Employment of a further scientific assistant and a further member of staff in the domestic service area: The recommendation has been implemented.
- 9) For the new Director: increase the Director's activity at MFO to 50 per cent and also consider making a joint appointment with a neighbouring university: The new Director has been jointly appointed to a professorship at the University of Tübingen with a secondary appointment of 50 per cent for his activities at MFO.

Appendix

List of Participants

1. Review Board

Chair (Member of the Leibniz Senate Evaluation Committee)

Hans-Peter **Seidel**

Max Planck Institute for Informatics, Saarbrücken

Deputy Chair (Member of the Leibniz Senate Evaluation Committee)

Ilse **Helbrecht**

Geography Department, Humboldt-Universität zu Berlin

Reviewers

Claudia **Czado**

Applied Mathematical Statistics, Technische Universität München

Nassif **Ghoussoub**

Banff International Research Station and Department of Mathematics, University of British Columbia, Canada

Laurent **Guillopé**

Département de Mathématiques, Faculté des sciences et techniques, Université de Nantes, France

Ian **Hambleton**

The Fields Institute for Research in Mathematical Sciences and Department of Mathematics & Statistics, McMaster University, Canada

Mihyun **Kang**

Institute of Discrete Mathematics, Graz University of Technology, Austria

Michael **Rapoport**

Mathematical Institute, University of Bonn

David J. **Silvester**

Chair in Numerical Analysis, School of Mathematics, University of Manchester, UK

Representative of the Federal Government

Friederike **Trimborn-Witthaut**

Federal Ministry of Education and Research, Bonn

Representative of the Länder Governments (Member of the Leibniz Senate Evaluation Committee)

Claudia **Herok**

Brandenburg Ministry of Science, Research and Culture, Potsdam

2. Guests

Representative of the relevant Federal government department

Frank **Wolf** Federal Ministry of Education and Research, Bonn

Representative of the relevant Land government department

Tania **Bolius** Ministry of Science, Research and the Arts, Baden-Württemberg

Representative of the Scientific Advisory Board

Wolfgang **Lück** Hausdorff Research Institute for Mathematics, Bonn

Representative of the Leibniz Association

Brigitte **Voit** Leibniz Institute of Polymer Research Dresden (IPF)

3. Representatives of MFO boards and collaborative partners (one-hour interview)

Chair of the Society "Gesellschaft für Mathematische Forschung e.V." (GMF)

Friedrich **Götze** Faculty of Mathematics, Bielefeld University

Chair of Scientific Committee of GMF

Günter **Ziegler** Institute for Mathematics, Freie Universität Berlin

Chair of Oberwolfacher study group (Arbeitsgemeinschaft)

Gerd **Faltings** Max-Planck-Institute for Mathematics, Bonn

Chair of „Friends of Oberwolfach“ (Verein zur Förderung des Mathematischen Forschungsinstituts Oberwolfach) and Member of the Foundation board of the Oberwolfach Foundation

Ursula **Gather** Chair of Mathematical Statistics and Applications in Industry, TU Dortmund

Representative of the European Post-Doctoral Institute (EPDI) at the European research Centres on Mathematics (ERCOM) of the European Mathematical Society

Joachim **Schwermer** Erwin Schrödinger International Institute for Mathematical Physics (ESI)

24 October 2016

Annex C: Statement of the Institution on the Evaluation Report

Oberwolfach Research Institute for Mathematics (MFO)

The Mathematisches Forschungsinstitut Oberwolfach (MFO) is delighted by the high recognition that the evaluation report expresses for its scientific programmes and services, it welcomes the thoughtful recommendations made in the report. The MFO would like to thank the members of the review board, its guests and the evaluation office of the Leibniz Association for conducting a very thorough and fair evaluation.

The institute is very pleased by the strong endorsement of the scientific programmes and their selection procedures, it appreciates the praise for its administrative and general staff. The MFO accepts the task to play a leading role in addressing the gender imbalance in national and international mathematical research. It is working with the Scientific Advisory Board to implement concrete measures to increase the proportion of women in its scientific programmes (recommendation 2). These measures will include additional efforts to communicate the opportunities offered at MFO to the international community, in particular to women, making use of online publications and research networks (recommendation 1). The MFO agrees with the recommendation to implement formal term limits for the chair and the deputy chair of the Scientific Committee, noting that a new chair of the Scientific Committee has been elected in October 2016 (recommendation 3).

The institute is thankful to the MFO's Scientific Advisory Board and Scientific Committee that have provided excellent advice and guidance over the past reporting period. We are grateful to the institute's governing association "Gesellschaft für Mathematische Forschung", the "Oberwolfach Foundation" and "Friends of Oberwolfach", the state and federal funding agencies as well as external foundations for their continued strong support of the Mathematisches Forschungsinstitut Oberwolfach.