

ExtreMe Matter Institute EMMI

Helmholtz Alliance
„Cosmic Matter in the Laboratory“



www.gsi.de/emmi

Helmholtz Alliance

Cosmic Matter in the Laboratory

Status:

- approved in Nov. 2007 by Helmholtz Association
- 18.75 MEuro for 6 years
- 54 MEuro as matching funds from Partners
- starting date: 1st April 2008
- ExtreMe Matter Institute EMMI founded at GSI

Coordinating Helmholtz Centre:

GSI Helmholtz Centre for Heavy Ion Research



Organisation

13 Partner Institutions

Management:

Scientific Director: Prof. Dr. Peter Braun-Munzinger

Administrator: Dr. Heidrun Bojahr

Scientific Coordinator Prof. Dr. Carlo Ewerz

+ administrative and IT support

30 further experts as **Associated Partners**

Scientific Council (representatives of Partners)
as main steering body

Program Advisory Committee (8 external experts)

Partner Institutions

- GSI Helmholtz Centre for Heavy Ion Research
- Forschungszentrum Jülich
- Technische Universität Darmstadt
- Johann Wolfgang Goethe-Universität Frankfurt
- Ruprecht-Karls-Universität Heidelberg
- Universität Münster
- Max-Planck-Institut für Kernphysik (MPIK), Heidelberg
- FIAS Frankfurt Institute for Advanced Studies
- Université VI (Pierre et Marie Curie), Paris
- Lawrence Berkeley National Laboratory, Berkeley
- Joint Institute for Nuclear Astrophysics (JINA)
- University of Tokyo
- RIKEN, Saitama

Unique combination of: education and top-class research, universities and research centres



RUPRECHT-KARLS-
UNIVERSITÄT
HEIDELBERG
EXZELLENZUNIVERSITÄT



HGS-HIRe for FAIR
Helmholtz Graduate School for Hadron and Ion Research



H-QM | Helmholtz Research School
Quark Matter Studies

Goals of the Alliance

Central Goal:

establish the **ExtreMe Matter Institute EMMI** as a

Think Tank for extreme matter research

aiming at:

- interdisciplinary scientific programs of highest quality
- strong promotion of young researchers
- new network among two Helmholtz centres and eleven top national and international laboratories and universities

complementary to HICforFAIR

Main Research Areas of EMMI

Matter under extreme conditions of temperature, density and pressure, in particular

- quark-gluon plasma
- neutron matter
- plasma physics
- atomic physics and ultracold gases

Vision:

bringing together the best minds from these communities

Emergence of common concepts

Common structures and underlying theoretical concepts for these strongly coupled systems, for example

- from BEC to BCS
- from QGP to ultracold Fermi gases
- from conformal field theory to QCD via black holes
- from neutron star matter to strongly coupled electromagnetic plasmas
- ...

Opportunity to attract top talents

- 18 new positions (incl. permanent/tenure track) pledged by Partners
- more than 100 senior researchers participating in the Alliance, more than 300 scientists in total
- 9 positions filled to date at Partner Institutions (TUD, MPI-K, MS, HD, FIAS, FZJ, LBNL),
advanced recruiting for further senior positions (HD, F, ...)
- 4 EMMI fellow positions at GSI, 2 positions filled to date
- EMMI workshops and EMMI programs
- visitor program
- EMMI supported PhD students associated with surrounding graduate schools (H-QM, HGS-HIRe, HGSFP)

EMMI Building at GSI

- 2500 m², 5 stories, attractive design
- ground floor: lecture hall for 120 persons (can be divided 2:1), big foyer
- 4 floors with offices for ~200 persons, upper two floors for EMMI (→ office space for programs)
- 4 seminar rooms
- video & audio recording of talks foreseen

ExtreMe Matter Institute EMMI

EMMI Workshops and EMMI Programs

Call for Proposals

The ExtreMe Matter Institute EMMI at GSI invites proposals for workshops and research programs in the four main research areas of EMMI:

- quark-gluon plasma
 - neutron matter
 - electromagnetic plasmas of high energy density
 - ultra-cold quantum gases and extreme states in atomic physics,
- all understood in a broad sense.

Further information at www.gsi.de/emmi

