

ExtreMe Matter Institute EMMI

created within the framework of the
Helmholtz Alliance
„Cosmic Matter in the Laboratory“



www.gsi.de/emmi

Helmholtz Alliance

Cosmic Matter in the Laboratory



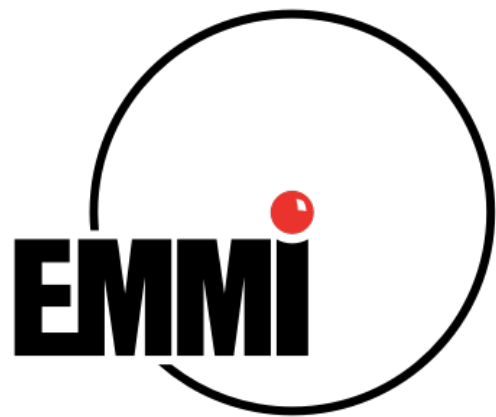
Alliance on Cosmic Matter
in the Laboratory

- original funding 2008-2014: 18.75 MEuro
- > 50 MEuro as matching funds from Partners
- **ExtreMe Matter Institute EMMI** founded at GSI
- sustained continuation of EMMI with 500 kEuro per year as part of GSI

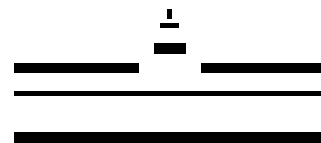


Partner Institutions

- GSI Helmholtz Centre for Heavy Ion Research
- Forschungszentrum Jülich
- Technische Universität Darmstadt
- 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



... and its Partners



WESTFÄLISCHE
WILHELMS-UNIVERSITÄT
MÜNSTER



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386



TECHNISCHE
UNIVERSITÄT
DARMSTADT

Organisation

13 Partner Institutions

Management:

Scientific Director: Peter Braun-Munzinger

Scientific Coordinator: Carlo Ewerz

+ administrative support

32 further experts as **Associated Partners**

Scientific Council (representatives of Partners)

as main steering body

Program Advisory Committee (8 external experts)

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 and phase diagram of QCD
- neutron matter
- plasma physics
- atomic physics and ultracold gases

... and related topics

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
- hydrodynamics, turbulence, ...
- ...

EMMI Scientists

- more than 100 senior researchers participating in EMMI, more than 400 scientists in total
- 16 new positions (incl. professorships / tenure track) created and filled by partners:
 - 12 at TUD, F, MPI-K, MS, HD, FIAS, FZJ, LBNL
 - 4 EMMI Fellow positions at GSI
- EMMI supported PhD students associated with surrounding graduate schools (H-QM, HGS-HIRe, HGSFP)

EMMI Programs

- EMMI Workshops
 - EMMI Programs
 - EMMI Rapid Reaction Task Force meetings (RRTFs)
-
- Visiting Professor program
 - Visiting Researcher program

Sustained Continuation of EMMI

- 500 kEuro / year from GSI
- Workshops, RRTFs, Visiting Professorships
- with 2 other alliances embedded in new network for Helmholtz research field *Matter / Matter and Universe*:
MUTLink - Matter Universe Technology Link
(funding under discussion)

planned in particular: RRTFs also in particle and astroparticle physics

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

