ExtreMe Matter Institute EMMI

Helmholtz Alliance

„Cosmic Matter in the Laboratory“

HELMHOLTZ ASSOCIATION

EMMI

GSI

www.gsi.de/emmi

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Alliance on 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

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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
- 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

TECHNISCHE UNIVERSITÄT DARMSTADT

GSI

UNIVERSITÄT HEIDELBERG
Zukunft. Seit 1386.

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

JÜLICH FORSCHUNGSZENTRUM

RIKEN NISHINA CENTER

MAX-PLANCK-INSTITUT FÜR KERNPHYSIK

EMMI

UPMC SORBONNE UNIVERSITÉS

THE UNIVERSITY OF TOKYO

WESTFÄLISCHE WILHELMS-UNIVERSITÄT MÜNSTER

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

BERKELEY LAB
Lawrence Berkeley National Laboratory

JINA

FIAS Frankfurt Institute for Advanced Studies

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 and phase diagram of QCD
- 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

- more than 100 senior researchers participating in the Alliance, more than 350 scientists in total
- 18 new positions (incl. permanent/tenure track) pledged by Partners
- 10 positions filled to date at Partner Institutions (TUD, F, MPI-K, MS, HD, FIAS, FZJ, LBNL),
  advanced recruiting for further senior positions (HD, F, ...)
- 4 EMMI Fellow positions at GSI, all filled
- EMMI workshops and EMMI programs
- visitor program
- EMMI supported PhD students associated with surrounding graduate schools (H-QM, HGS-HIRe, HGSFP)

EMMI → New Building at GSI

- 2500 m², 5 stories, attractive design
- ground floor: lecture hall for 120 persons (can be devided 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