## ExtreMe Matter Institute EMMI

## 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

#### 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
- 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









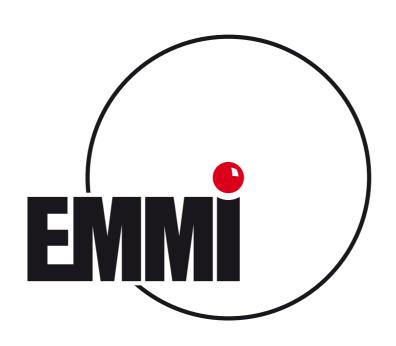
























## Goals of the Alliance

#### **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

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## 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 m<sup>2</sup>, 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

