

2. WG meeting Valencia



On Saturday in the Spanish News:

Noticias agencias

Noticias agencias

**Expertos europeos analizarán en Valencia
avances en el campo agujeros negros**



-The Action „Black Holes in a Violent Universe“

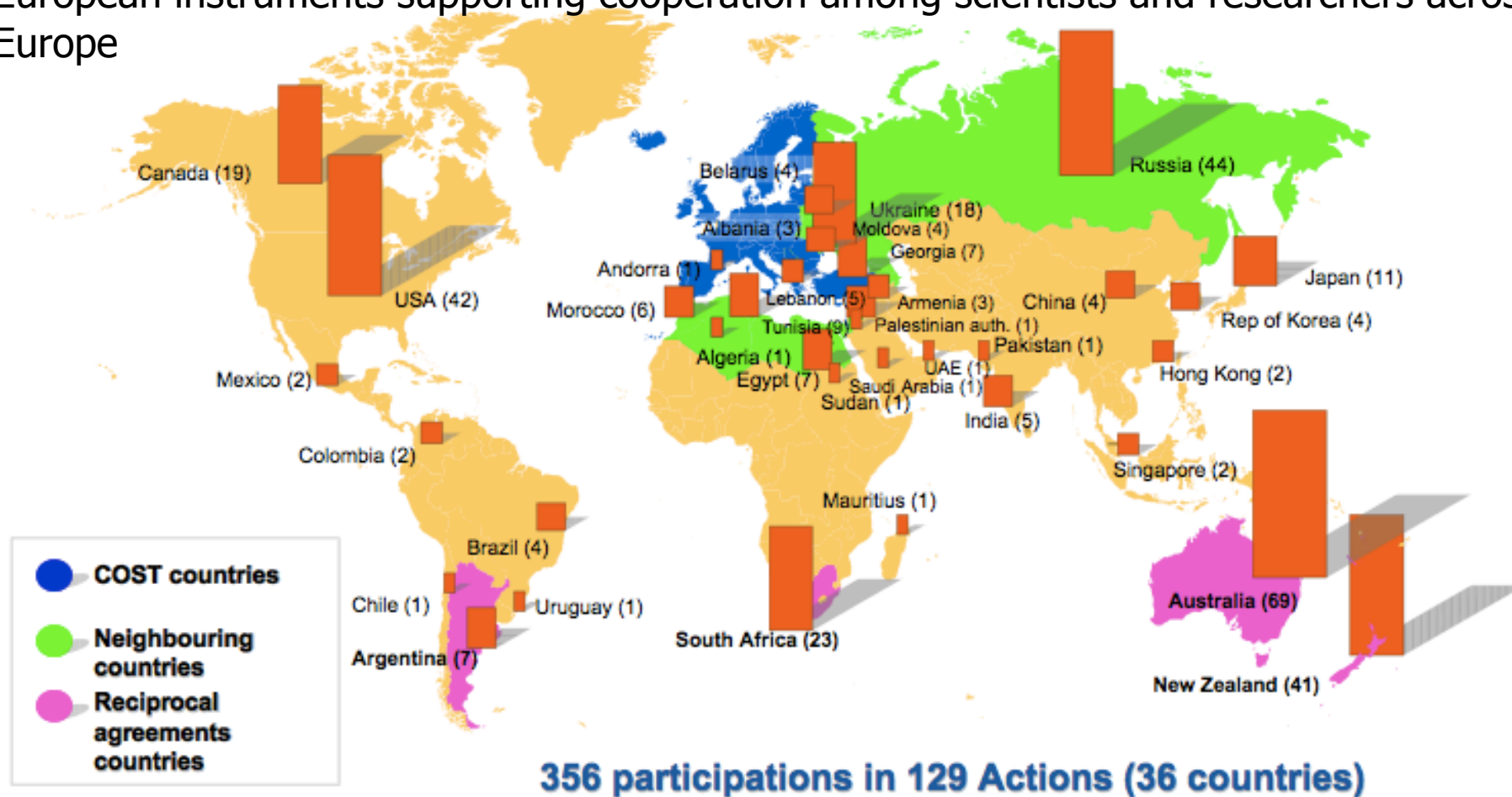
- who we are
- what we do and
- what we are aiming at !

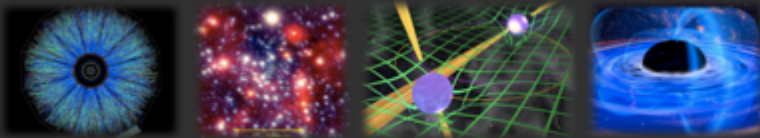
- How does COST work?

-What happened and is currently happening in our Action ?

COST Actions: global participation (status: June 2010)

COST (European Cooperation in Science and Technology) is one of the longest-running European instruments supporting cooperation among scientists and researchers across Europe





MP0905

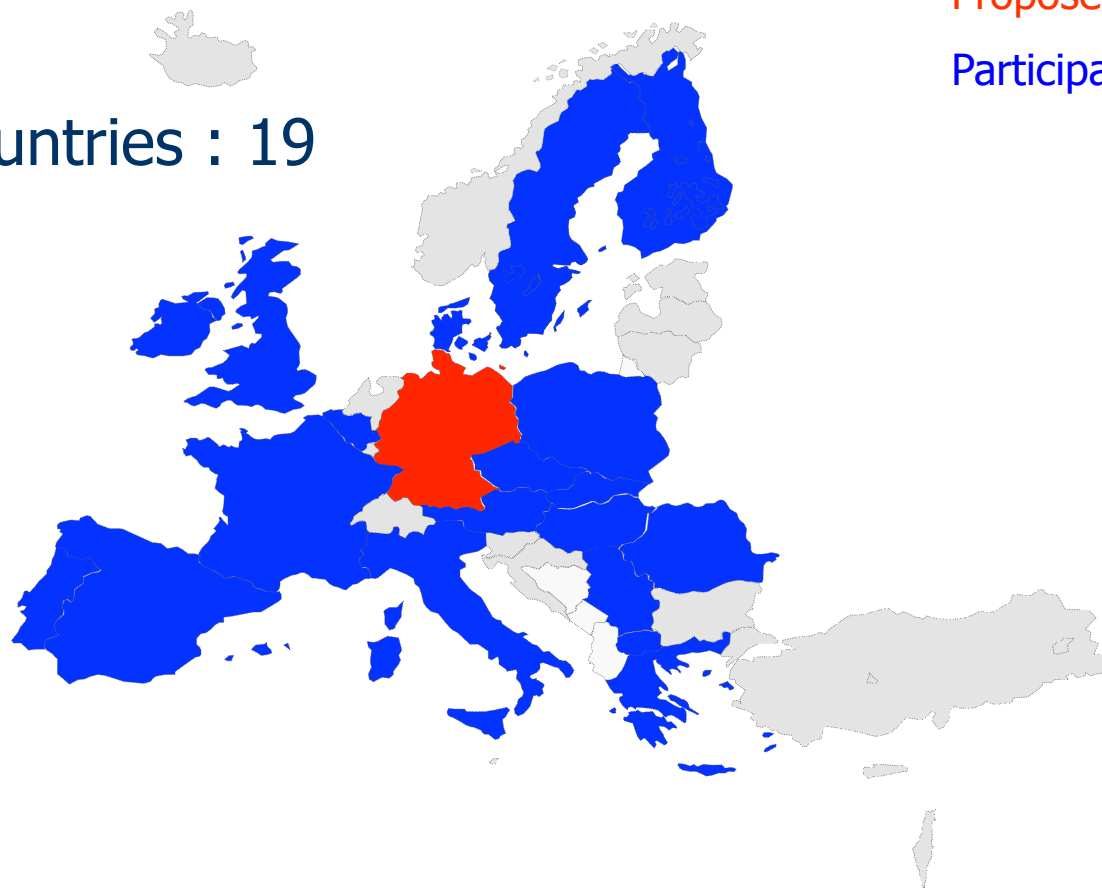
Proposer : red

Participants: blue

Participating Countries : 19

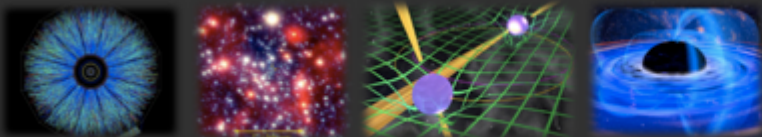
Proposer : **DE**

AT, BE, CZ,
ES, FI, FR,
GR, HU, IE,
IT, PL, PT, RO,
RS, SI, SE,
UK, DK

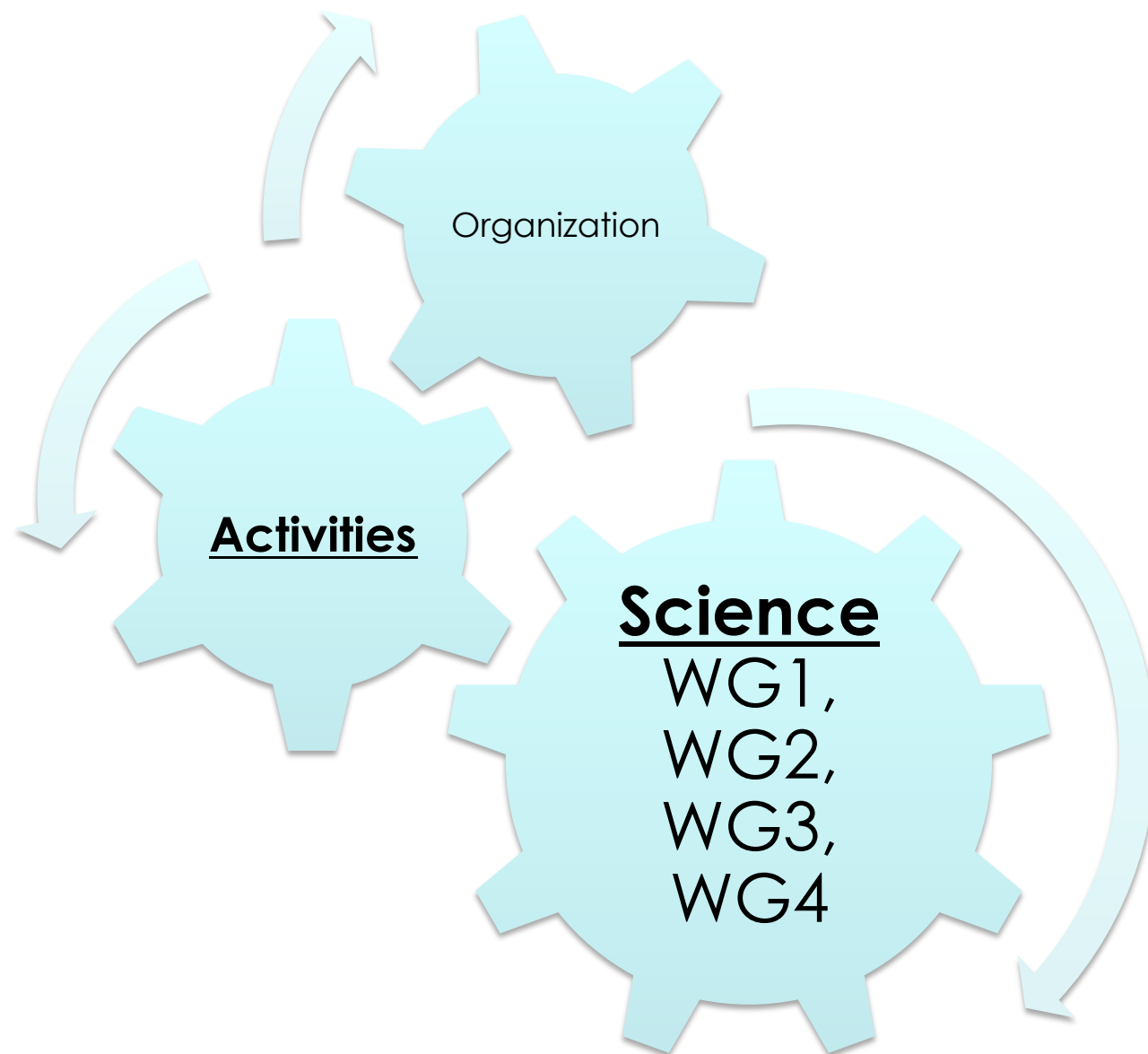


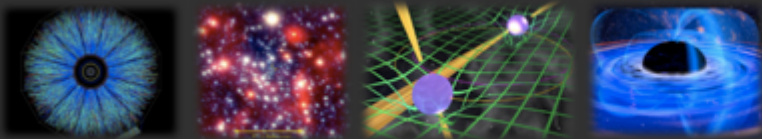
Plus: Australia

In preparation: Georgia, Lebanon, etc.

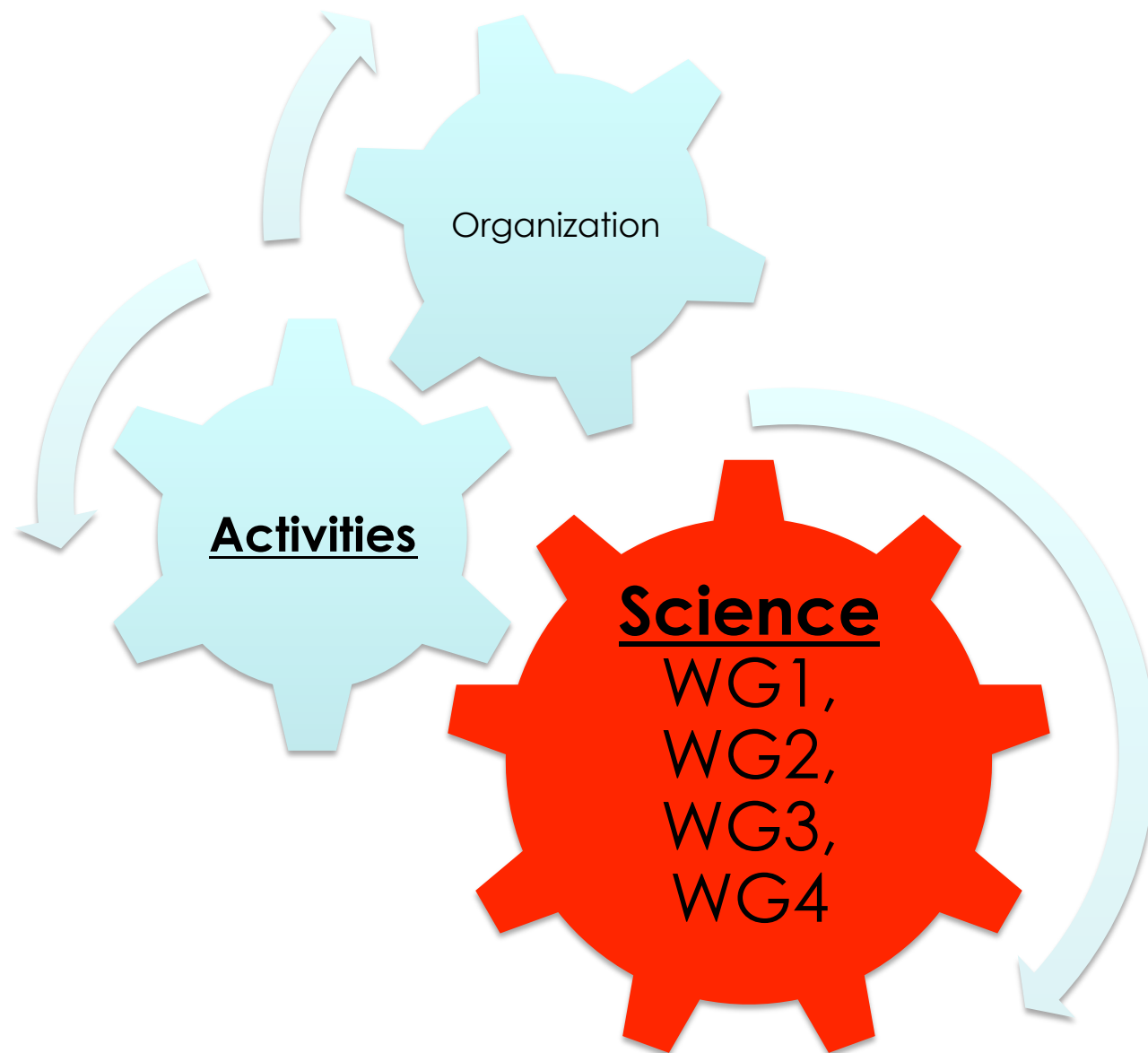


How COST works





How COST works



It's all about Black Holes

..... and synergies !!!!!

Black Holes are the engines of our Universe's history



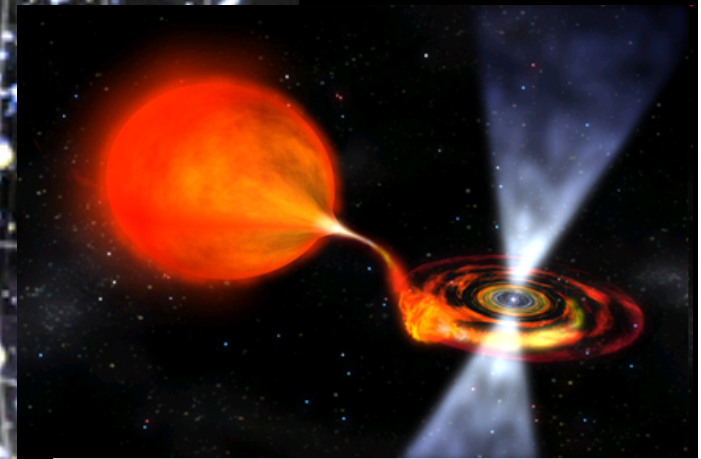
Primordial
Black Holes



Galactic Center
Black Hole



Supermassive Black Holes

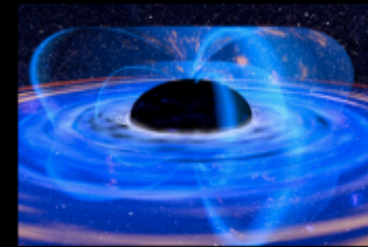
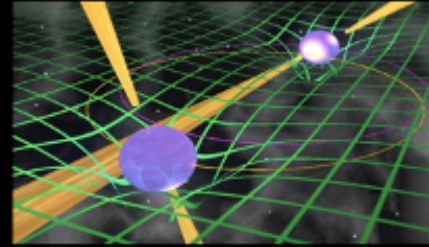
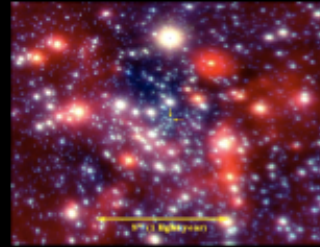
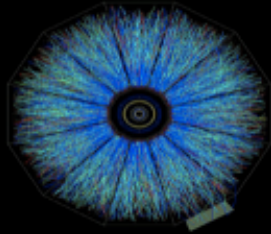


Stellar Black Holes / Pulsars

The 4 Working Groups



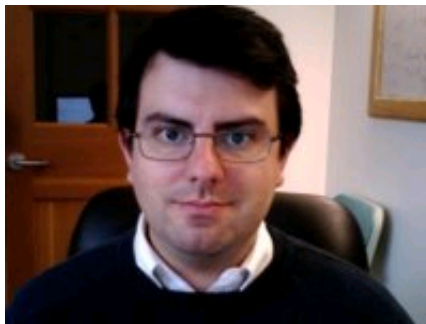
BLACK HOLES IN A VIOLENT UNIVERSE ACTION MP0905



WG1:

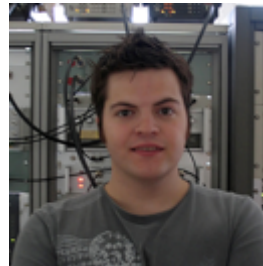
Quantum BHs

Xavier Calmet
University of Sussex



WG2: Stellar BHs / Pulsars

Anthony Rushton
ESO fellow at Onsala
Space Observatory



Robert Ferdman



WG3:

Galactic Centre BH

Andreas Eckart
I. Physikalisches Inst.
Universität Köln



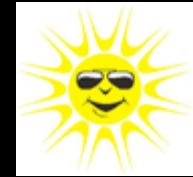
WG4:

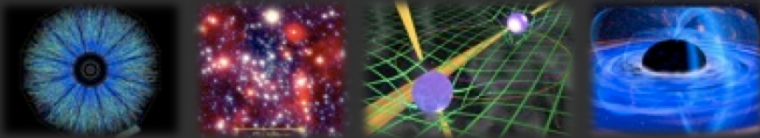
Supermassive BHs

Eduardo Ros
University of Valencia



Black Holes in galaxies
Mass: Millions to Billions





Active/Inactive Black Holes



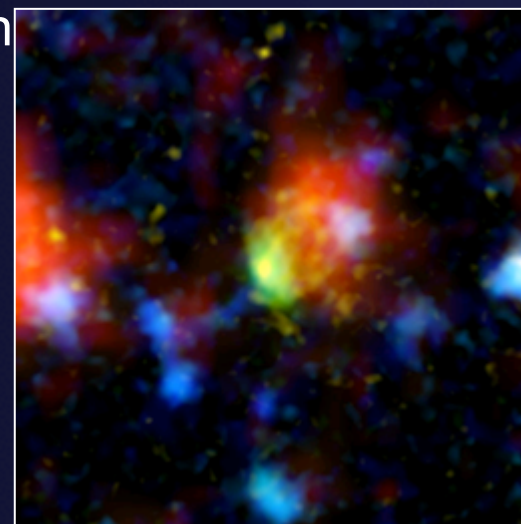
Normal
Galaxies



Merging
Galaxies



Starformation
Galaxies



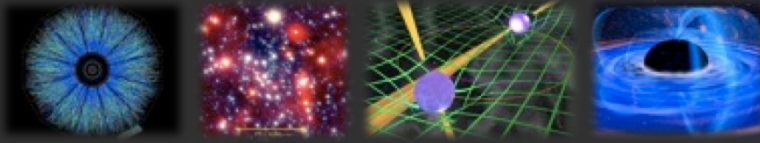
Active
Galaxies



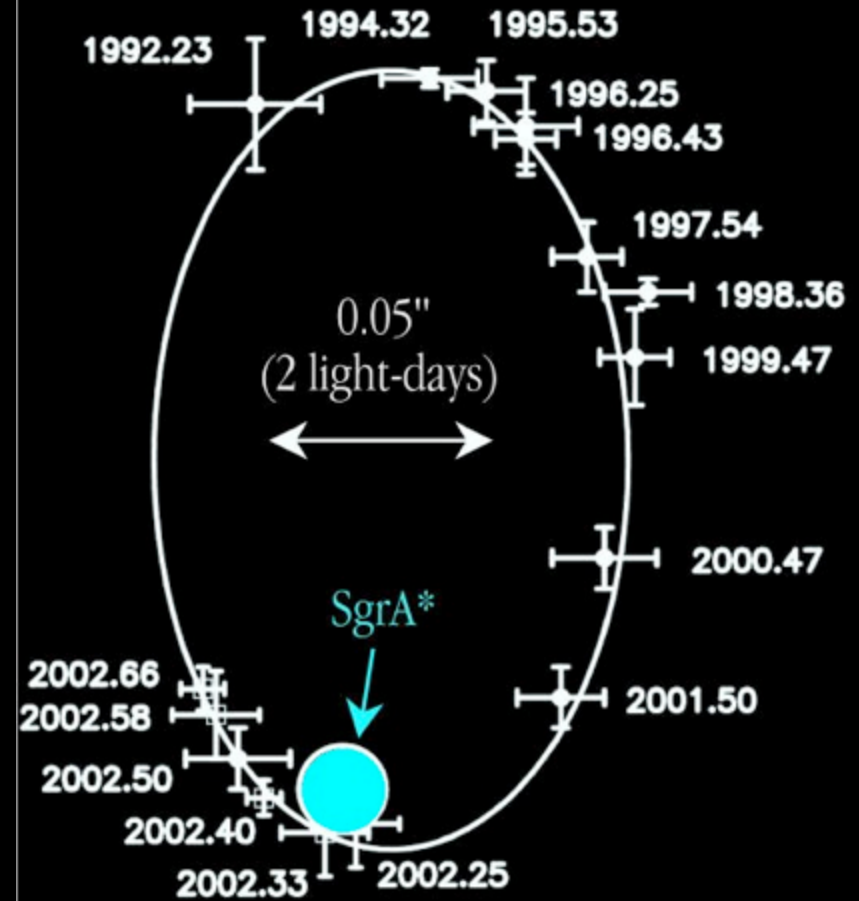
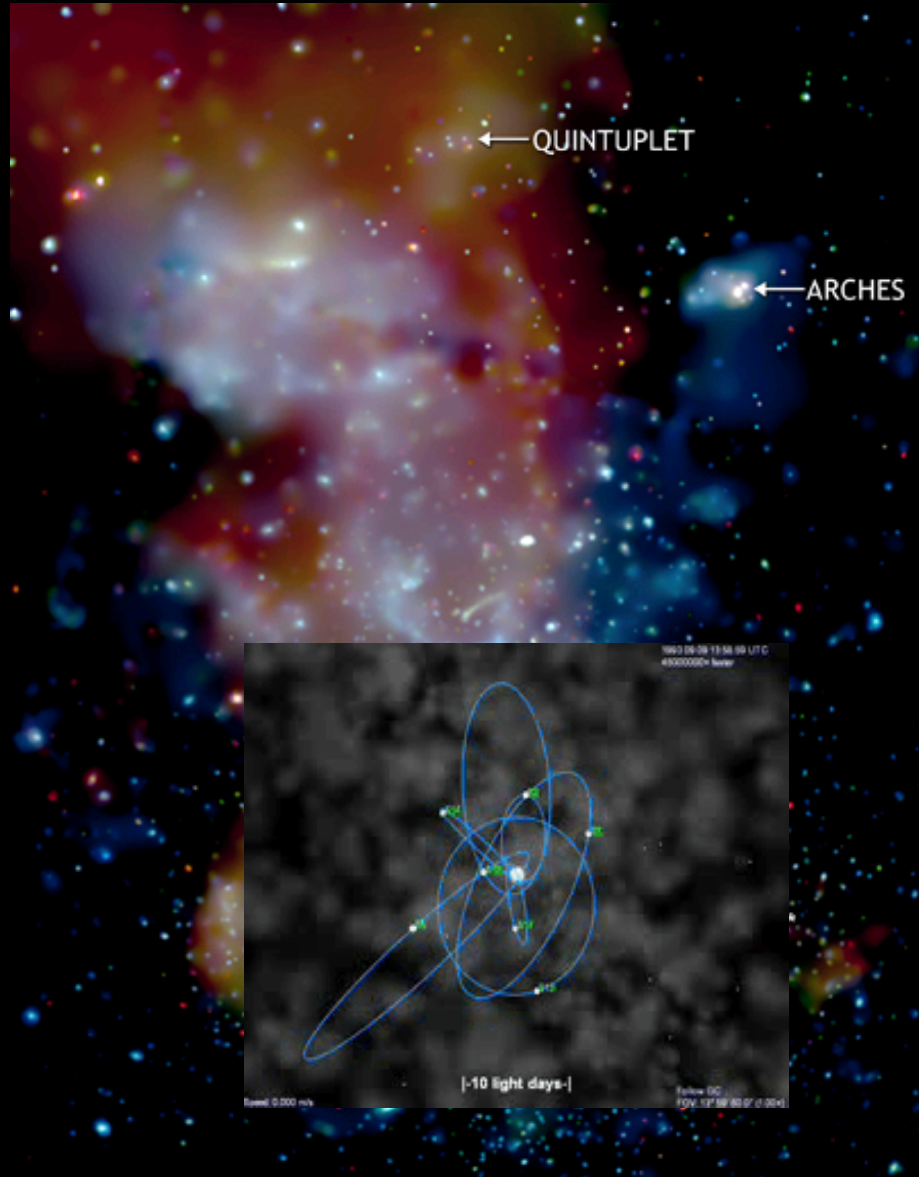
Galactic Center Black Hole (Milky Way)

Mass: 4 Mio



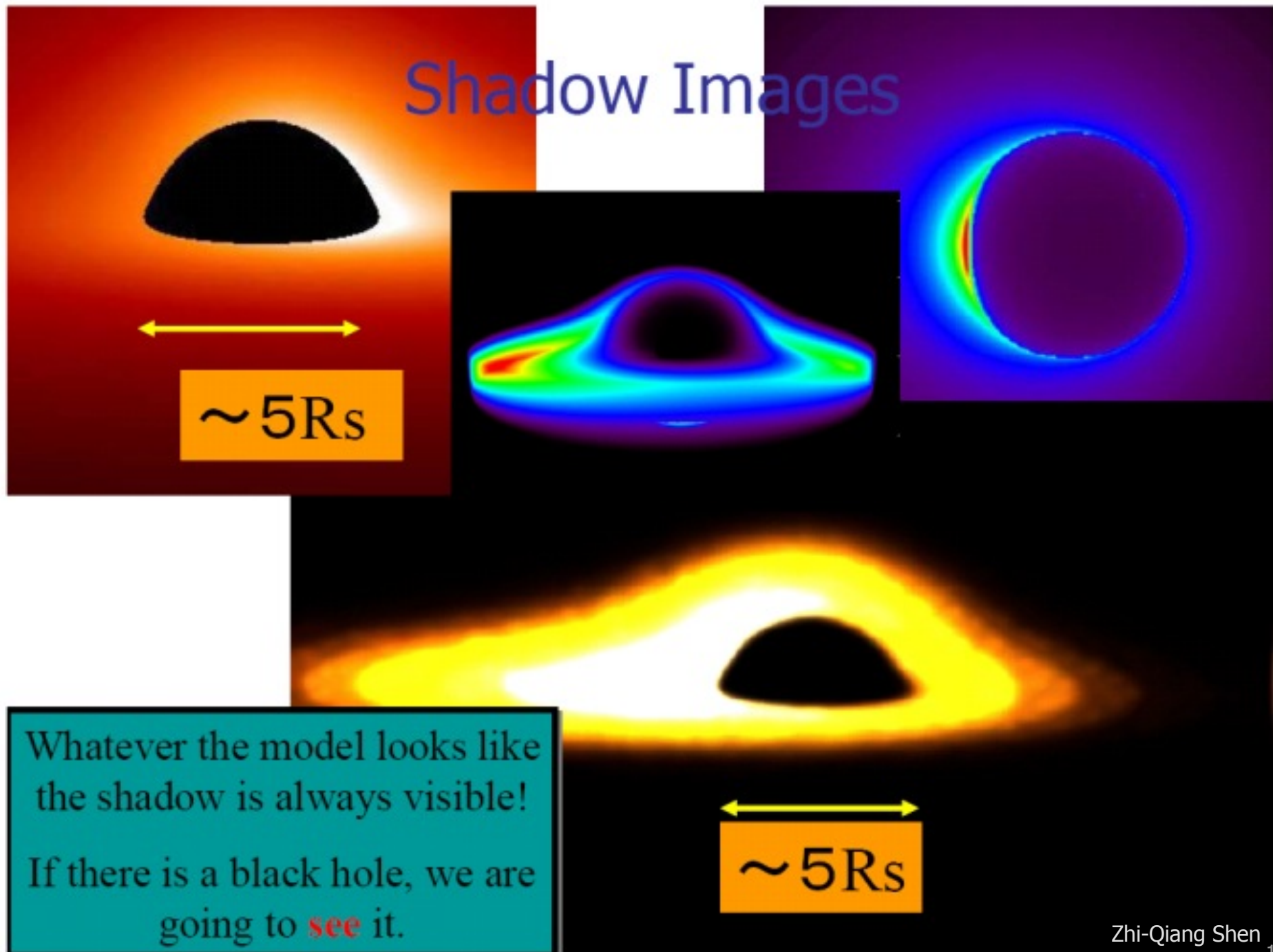


Galactic Center Black Hole (4 Mio M_{\odot})



Schödel et al, Nature, 2002

Shadow Images

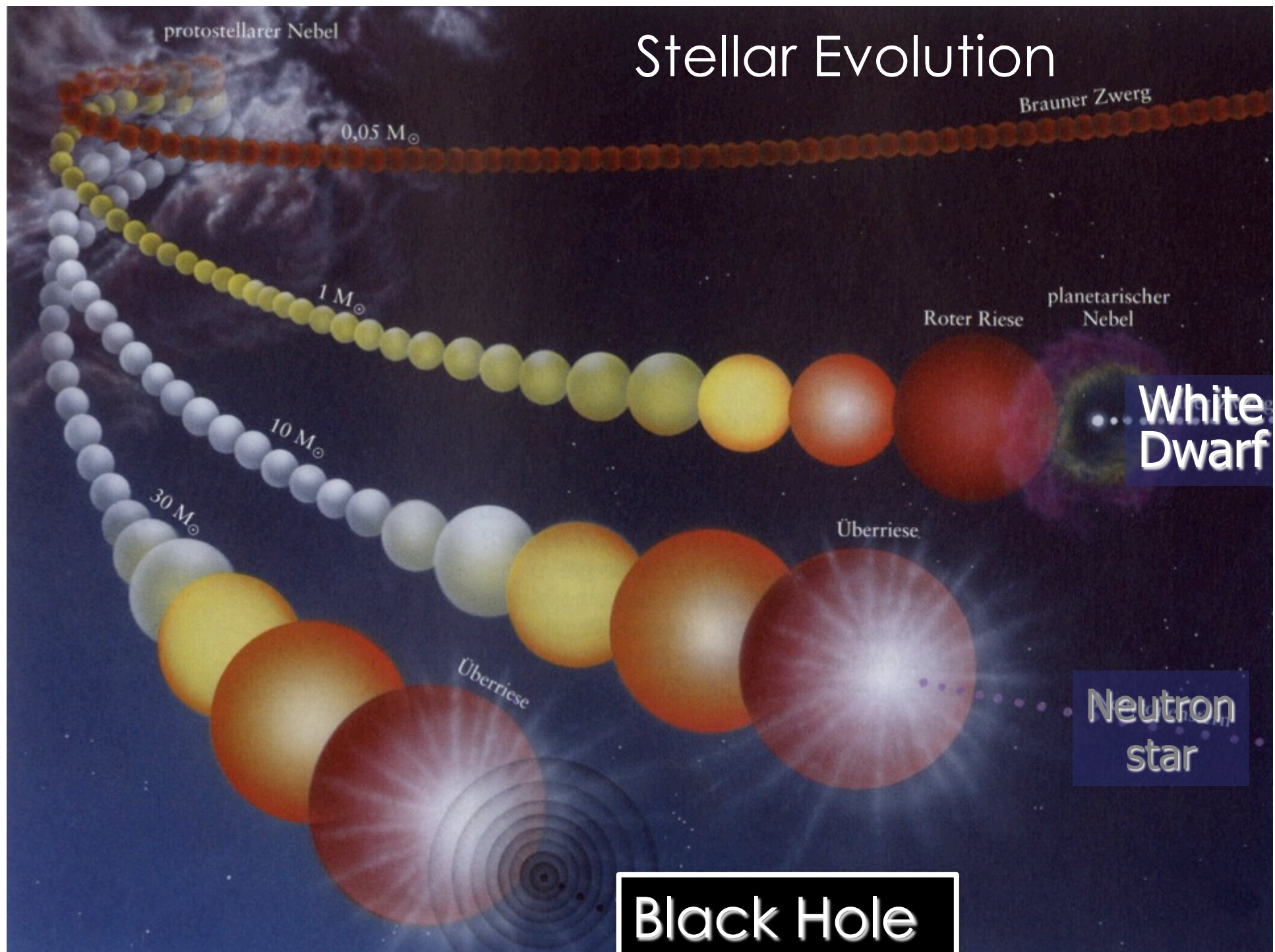


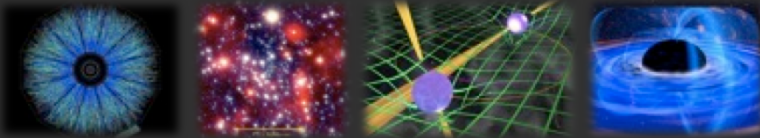
Stellar Black Holes

Mass: 1 - 100



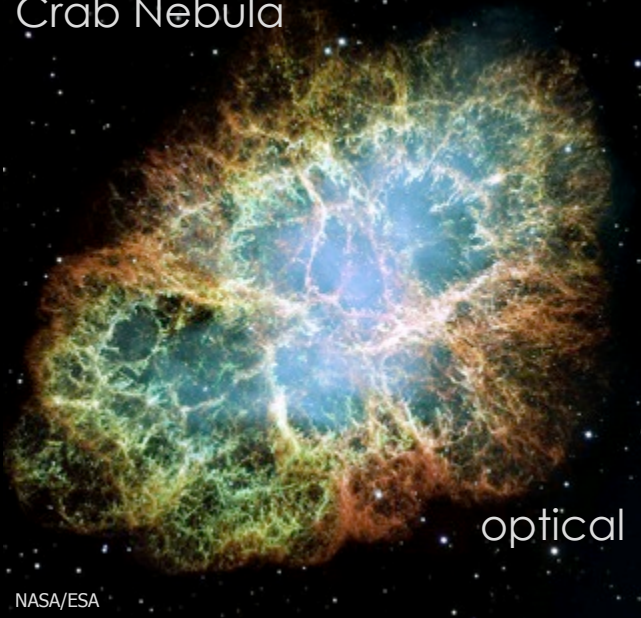
Stellar Evolution





Stellar Black Holes / Pulsars ($1 M_{\odot} < M_{\text{BH}} < 100 M_{\odot}$)

Crab Nebula



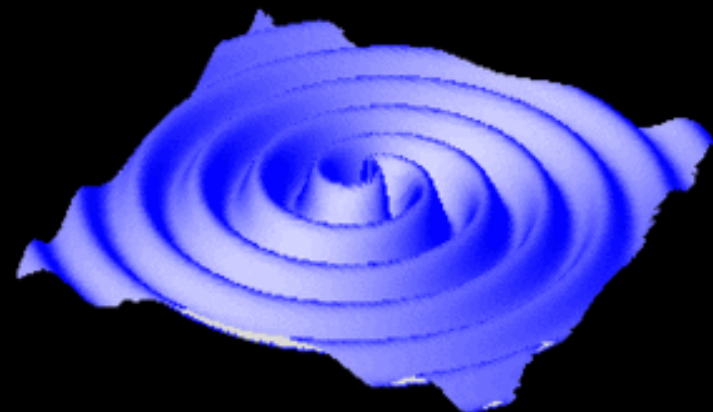
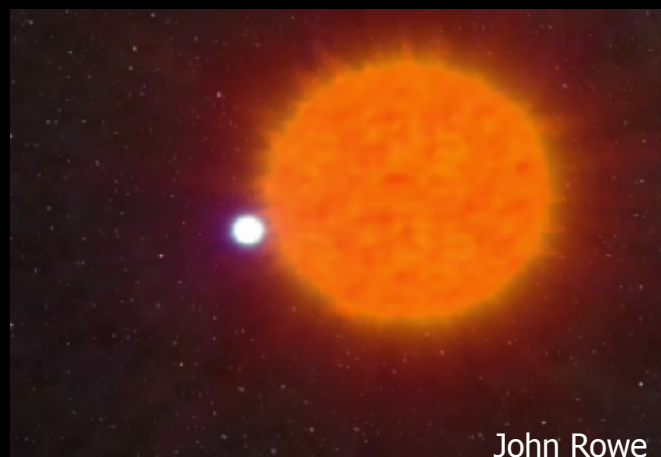
optical



infrared



X-rays & optical



Black Holes on Earth (LHC)

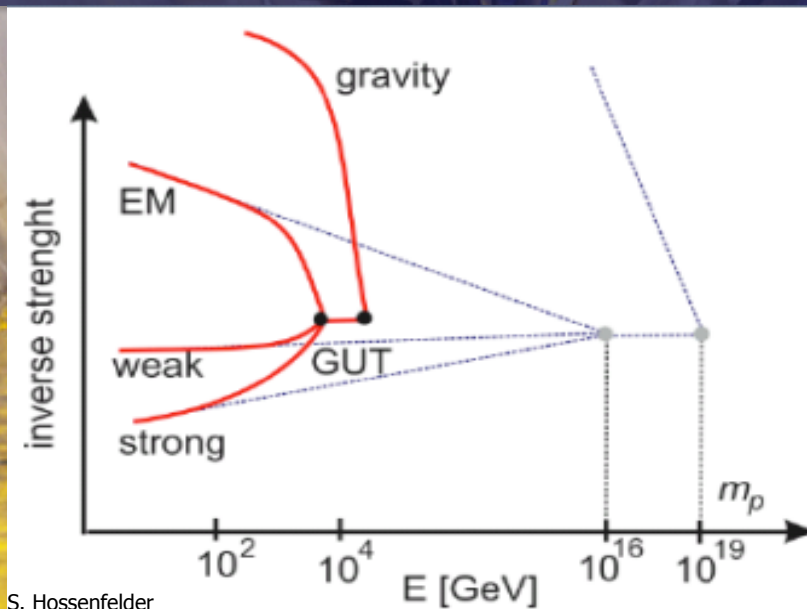
Mass: ???



Quantum Black Holes at the LHC

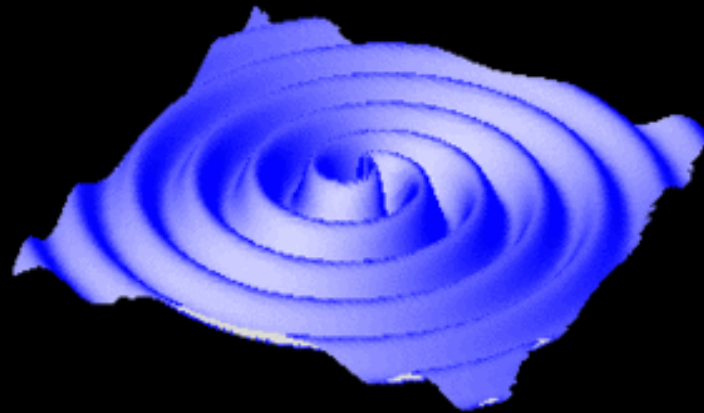
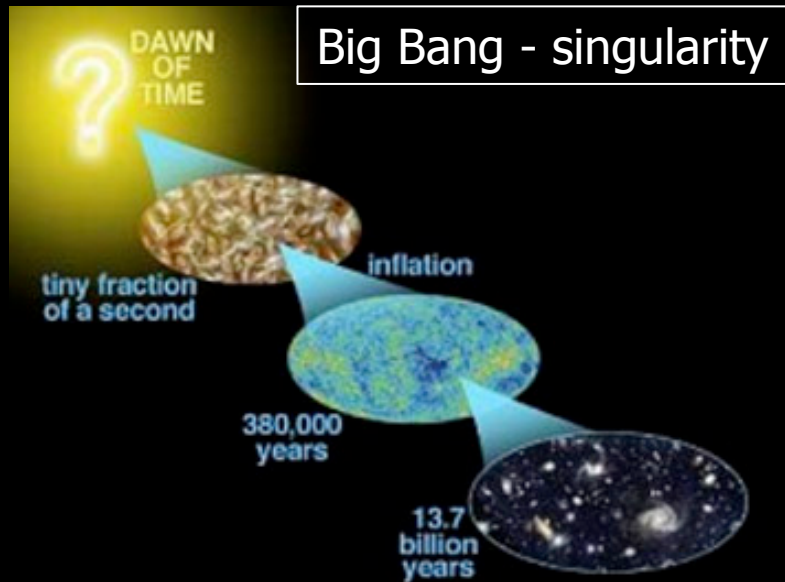
($M_{\text{BH}} \sim 10^{-24}\text{g} \sim 10^{-57} \text{☀}$)

- The Theory of Everything
- Constraints about the energy scale of the Universe
- How many dimensions ?

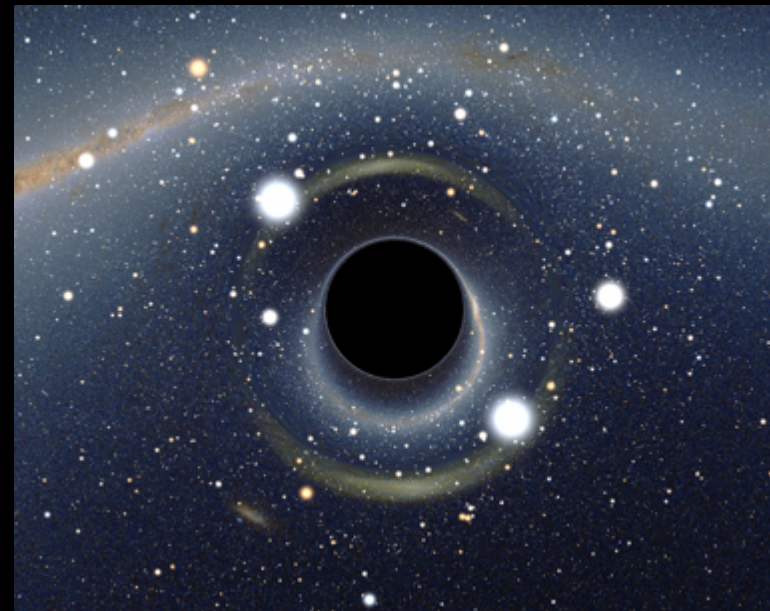


Most burning questions in physics today ...

Big Bang - singularity



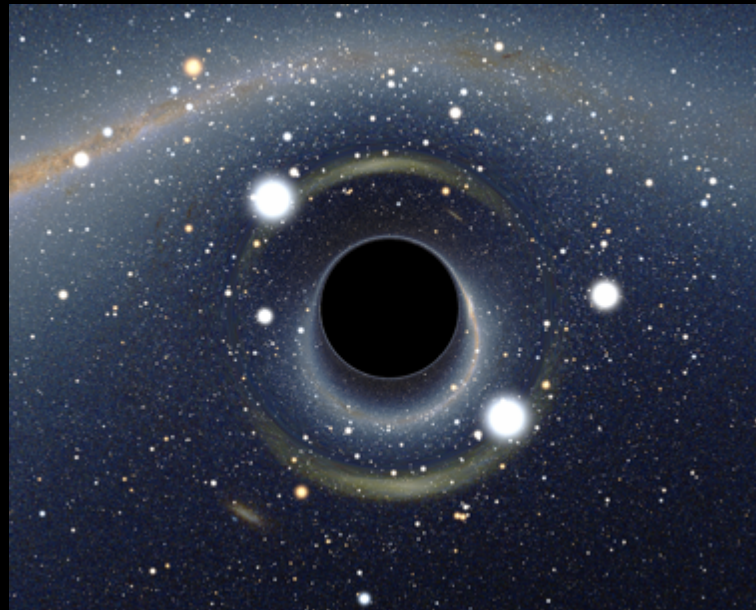
Black Hole - singularity



How did BHs form in the early Universe?

Primordial BHs – were they formed? Can their existence be proven ?

How do BHs grow?
Merger?
Accretion?



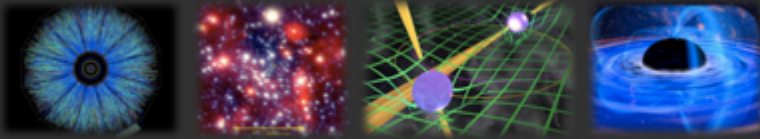
How do mergers work?

What kind of new physics
describes BHs ?

How can we
directly proof the Galactic
Center BH?

How massive can stellar BHs be? How do they form?

What will gravitational waves tell us about the BHs?
And when will they be detected?



What's the goal?

- To enhance the understanding of the BH-phenomenon and its impact on the evolution of our Universe
- To study the fundamental laws of nature using a **multi-disciplinary** and **multi-dimensional** approach to BH-research
- To use BHs as „laboratories“ to test new physical concepts

Tentative Program - Plenary Sessions - 15-16 November 2010

Monday, November 15th

Plenary Session (Aula Magna, Ground Floor)

09:00-09:10	Eduardo Ros	Welcome to participants, LOC announcements
09:10-09:45	Silke Britzen	Presentation of the COST action and of the meeting
09:45-10:35	Luciano Rezzolla	Simulating BH Mergers and their EM Spectrum, followed by discussion

Coffee Break (Upper Cloister, 2nd floor)

Parallel Sessions (WG2/3, Aulas 3rd floor; WG4 Aula Magna)

11:15-13:00 Parallel Sessions

Light Refreshments (Upper Cloister, 2nd floor)

Parallel Sessions

14:00-15:45 Parallel Sessions

Coffee Break (Upper Cloister, 2nd floor)

Plenary Session

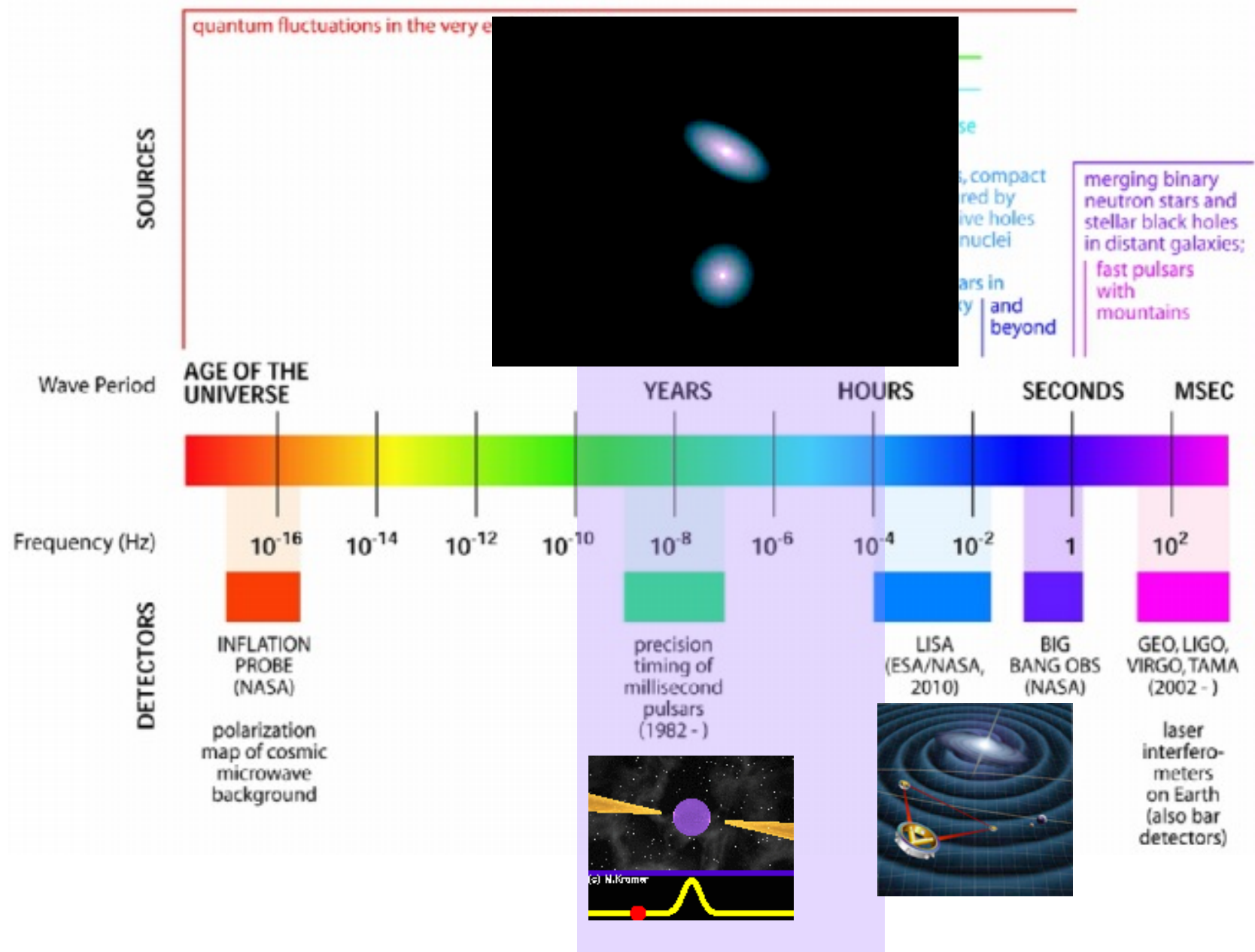
16:15-16:30	Robert Ferdman	Pulsars (WG2)
16:30-16:45	Anthony Rushton	Accretion on (stellar) BH (WG2)
16:45-17:00	Andreas Eckart	The Galactic Centre (WG3)
17:00-17:15	Eduardo Ros	Supermassive BH (WG4)
17:15-...	Silke Britzen (chair)	Discussion

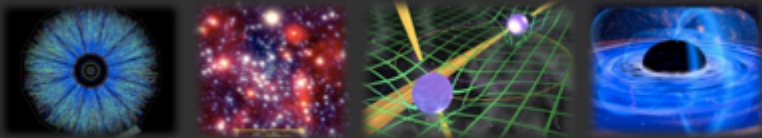
Tuesday, November 16th

Plenary Session

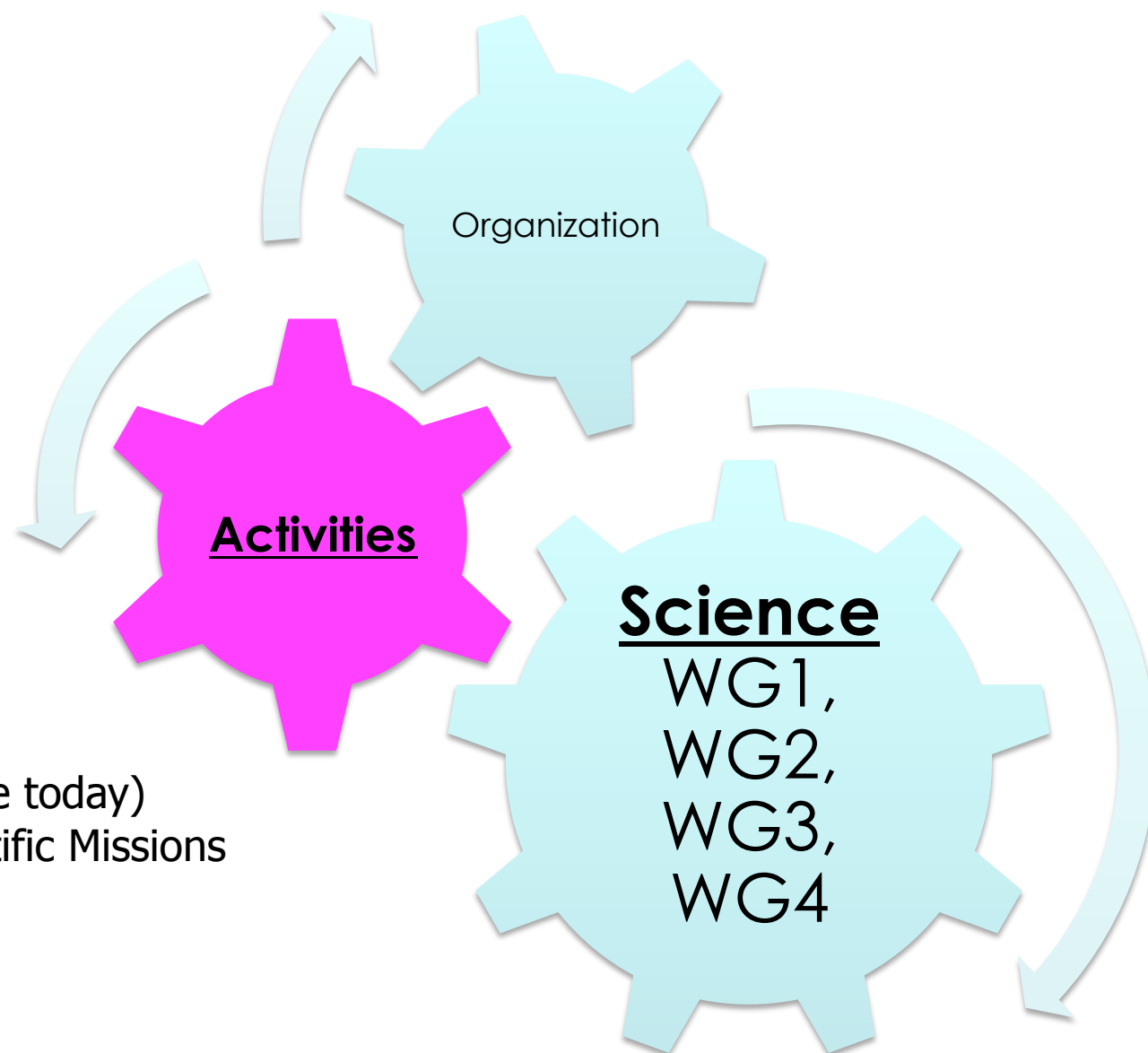
09:00-10:00	Ramon Khanna	Encyclopaedia of Black Holes (Springer Verlag Presentation), followed by discussion
10:00-10:45	Silke Britzen (chair)	Final Discussion and Adjourn

THE GRAVITATIONAL WAVE SPECTRUM

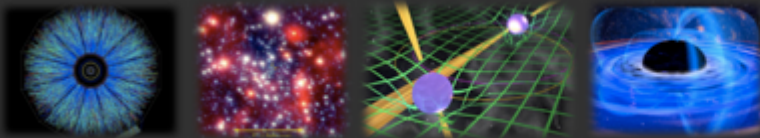




How COST works



Activities =
WG meetings (like today)
Short Term Scientific Missions
etc.



How COST works

WG meetings (like today)

Conferences

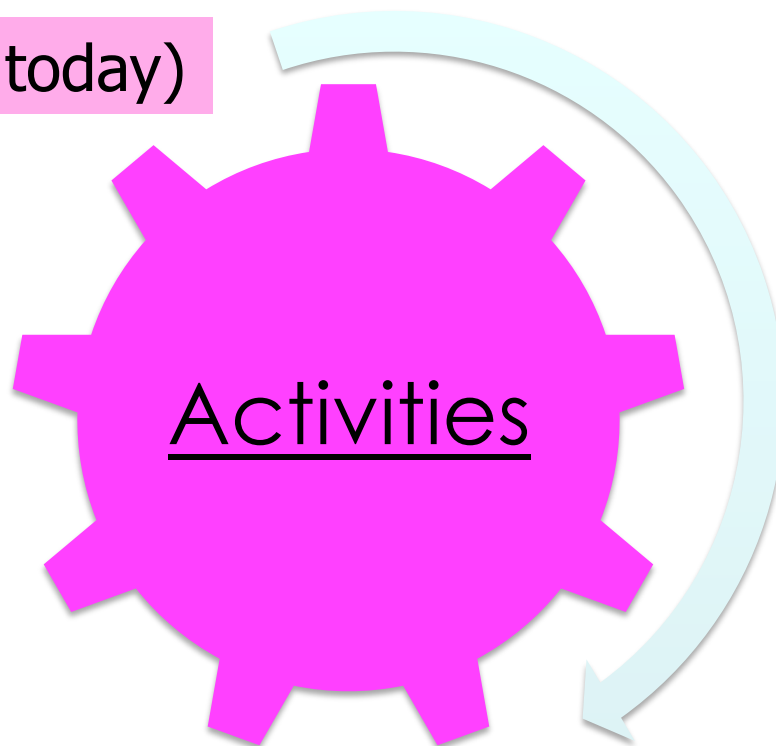
Short Term Scientific Missions=
„scientific travelling“

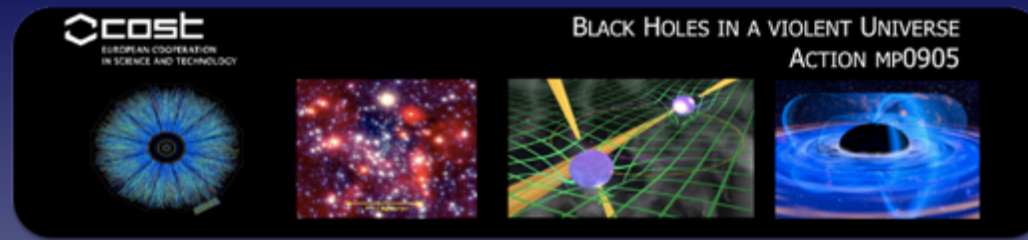
Encyclopedia

Webpage

Gender Forum

Training Schools





“The goal of COST is to ensure that Europe holds a strong position in the field of scientific and technical research for peaceful purposes, by increasing European cooperation and interaction in this field...”



Hence the funding and support for:

Short Term Scientific Missions (STSMs)

One of the most important activities within the COST action

Black Holes in a Violent Universe

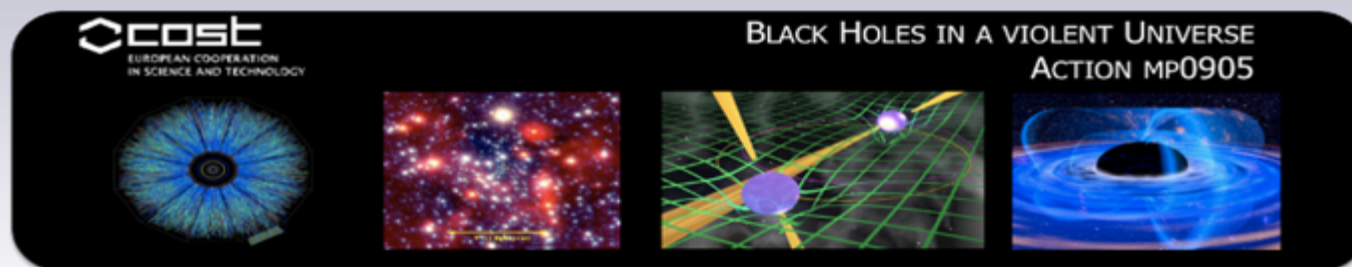
is to provide **financial support for scientific visits.**

Such visits are an

important tool for the

enhancement of the collaboration

between scientists that work in Black Hole related research across Europe.

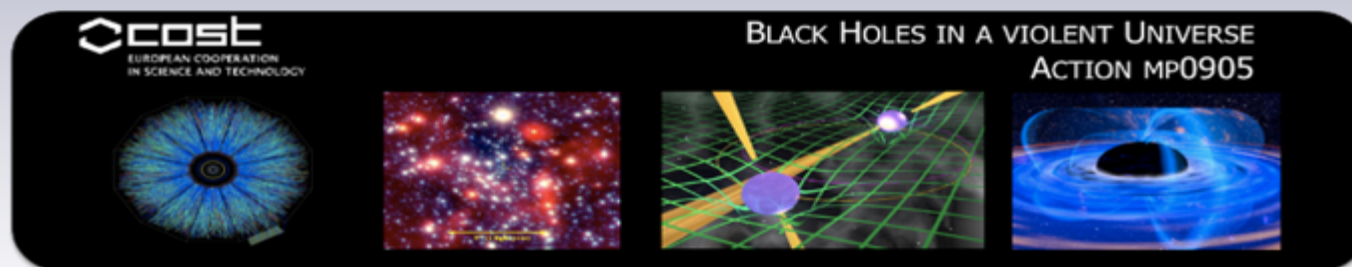


HOW DOES IT WORK?

WHAT DO WE SUPPORT?

Visits which:

- 1) Strengthen current collaborative projects
- 2) Will help establish new collaborations
- 3) Will offer to the applicant necessary knowledge for the application of new techniques
- 4) Will allow the applicant to use host infrastructures that are not available at the home institute.



HOW MUCH CAN WE HELP?

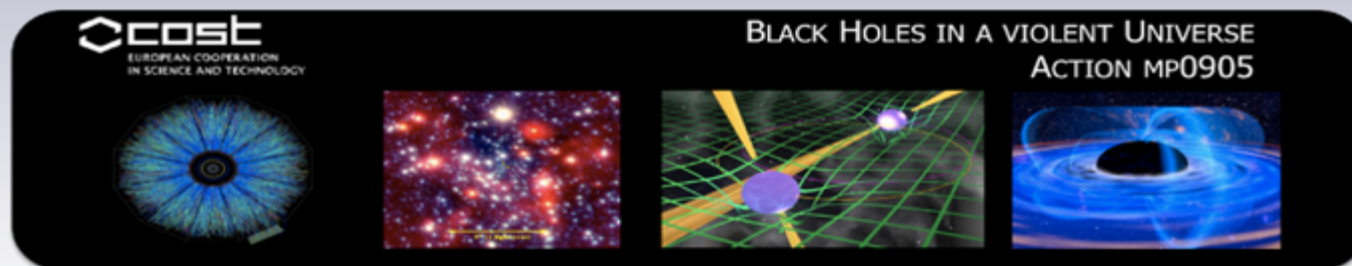
Indicative values for requested amount: 60 Euro for daily allowance, 300 Euro for travel expenses – BUT:

Total amount requested per STSM shall not exceed 2000 Euro.

WHO CAN APPLY?

A PhD student, a PostDoc or a staff member.

Both the home and the host institutions should be located in a country which participates in the COST action, and they can be organizations of the either the public or the private sector.



WHEN?

Deadline for next call of applications: **20/11/2010**

Available budget: **10,000 Euro**

Visits to be completed before: **June the 1st, 2011**
(more info:

http://www.mpifr-bonn.mpg.de/BlackHoles_COST/)

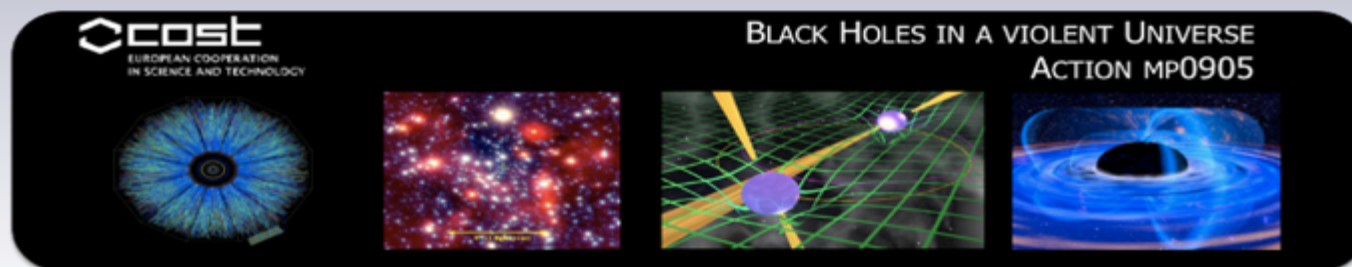
Previous call for applications (June 2010):

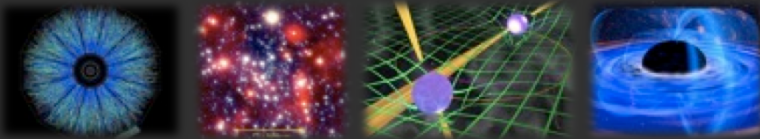
Number of applicants: **9**

Requested budget: **10890 Euro**

Successful applications: **8**

Allocated amount: **8790 Euros**





BLACK HOLES IN A VIOLENT UNIVERSE



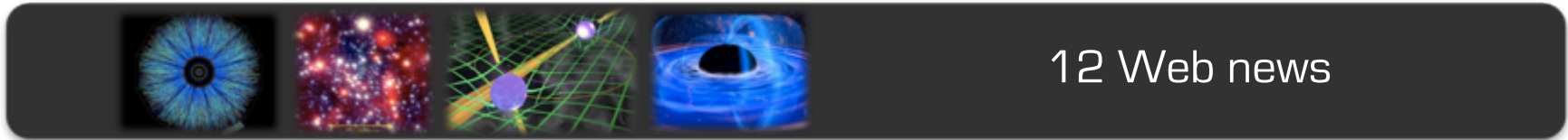
STSMs

8 STSMs currently running
6 months after start of
Action

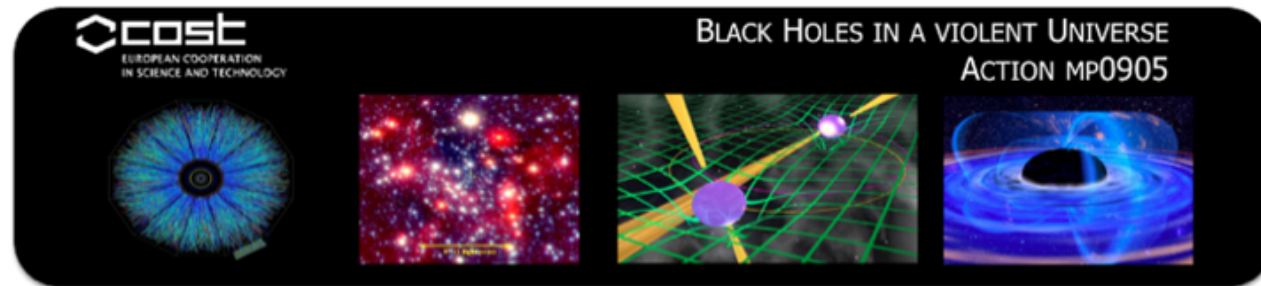
Next call open! Deadline
November 20

Publications in preparation





Find out more about our Action MP0905 at:
<http://www.mpifr-bonn.mpg.de/div/vlbi/COST/>



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- Home
- Science & Working Groups
- Consortium
- Exchange Visits (STSM)
- MEETINGS
- Publications
- Member Area
- Mailing list
- FAQ
- Contact

Action Duration: 13.01.2010 - 23.03.2014

Black Hole physics is both fundamental and broad ranging and hence multidisciplinary. The world's first open and flexible network on BH research will counteract the existing fragmentation of this research field. To attack the elementary and far-reaching demands posed by BH-related science, an overarching framework is required. It will connect astronomers from all wavelength regimes (from low energy radio bands up to ultra-high energies such as TeV), working on all mass scales of Black Holes, i.e. from the smallest structures up to the largest masses in the Universe (i.e. Quantum BHs to SMBHs), with physicists and particle physicists as well as theoreticians, observers and software and technology developers. By strengthening Europe's scientific networking capacities in BH research, Europe's leading role in the international competition will be enhanced. The collaboration of scientists and engineers in this Action will also catalyse an increase of European industrial competitiveness to meet the technological challenges of upcoming large-scale facilities (e.g. E-ELT, SKA).


*** 2nd WGs & MC Meetings in Valencia (15-16 Sep. 2010)

--- NEWS ---



- ❖ 2nd WORKING GROUPS MEETING
Valencia (ES) 15-16 Nov. 2010
- ❖ 2nd MC MEETING
Valencia (ES) 16 Nov. 2010
- ❖ 2nd STSM call
Deadline 20 Nov. 2010

--- GENDER ---



coordinator: Merja Tornikoski

- ❖ ASK QUESTIONS
- ❖ OUR GENDER ACTIVITIES
- ❖ WOMEN IN ASTRONOMY (IAU)

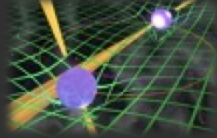
Soon to come:

- Blog on latest
Black Hole News
(worldwide)

- Gender Forum

- Results from STSM
travellers

-PhD-projects, PostDoc
positions



BLACK HOLES IN A VIOLENT UNIVERSE

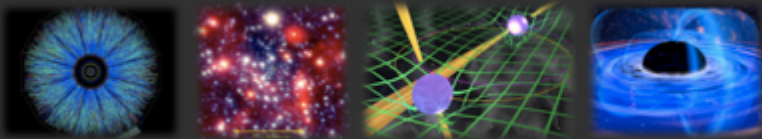
Outreach

Springer Publishers: Encyclopedia on Black Holes

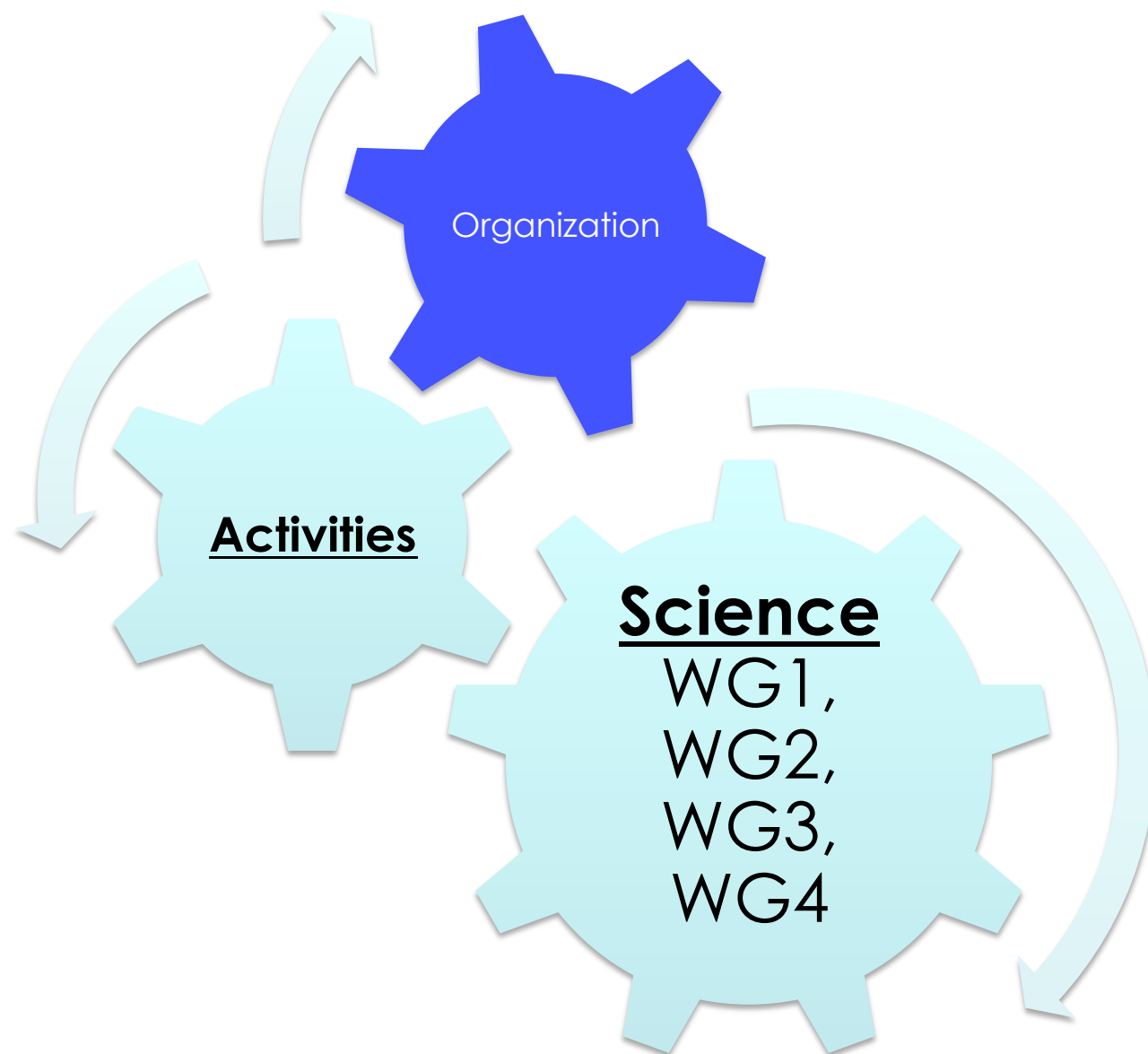


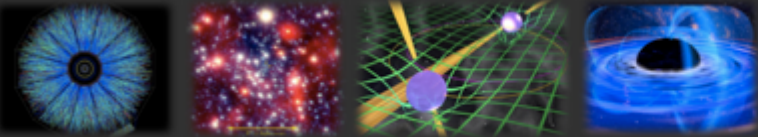
Tomorrow 9 oclock !





How COST works





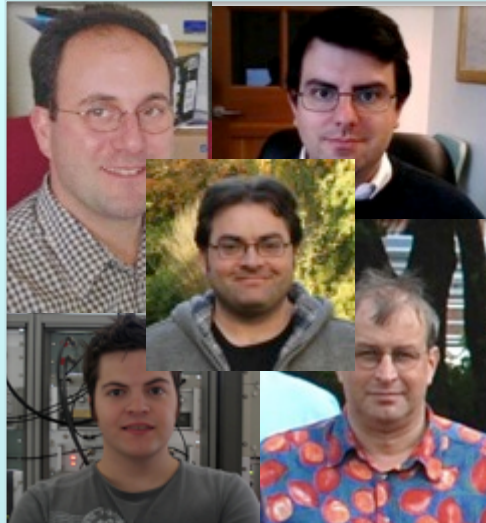
The Core Group

Chair:
Silke Britzen



E. Ros

X. Calmet



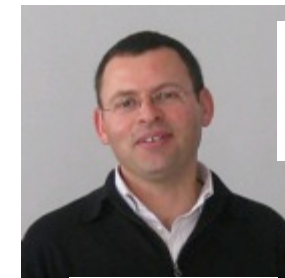
A. Rushton

A. Eckart

Vice-chair:
Antxon Alberdi



STSM Coordinator



Management & Grant Holder
Izabela Rottmann & Viola Tegethoff



Gender Coordinator



Outreach
Coordinator



Discuss!
Be creative! Enjoy the meeting!

