ASTRONET
Science Vision & Joint Call

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NWO / NOVA

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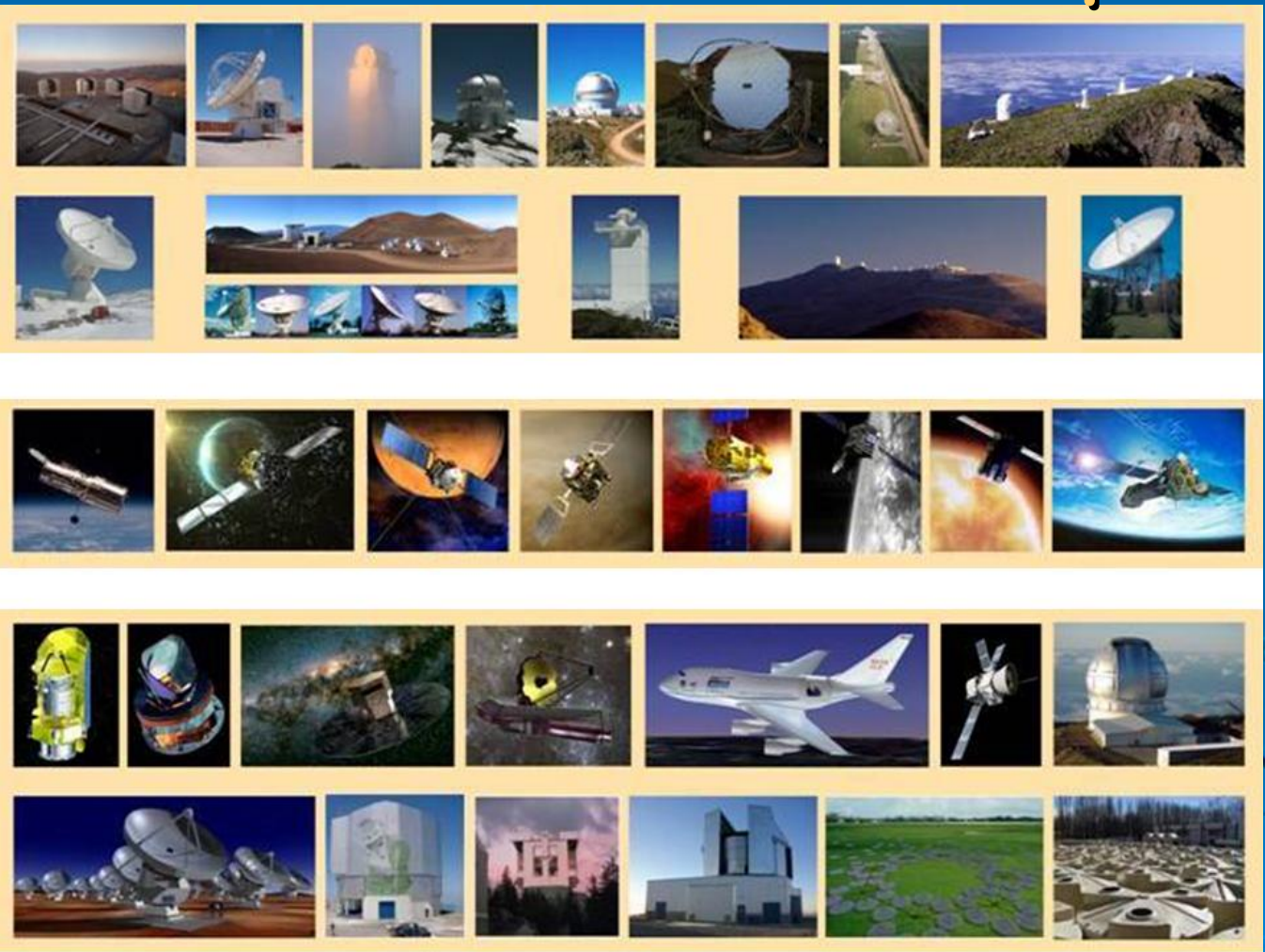
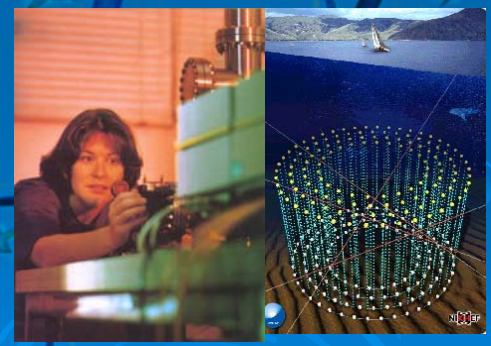
What is ASTRONET ?

- ASTRONET is an ERA-NET (FP6) that is a partnership of 26 funding agencies en ministries (including ESA and ESO), representing more than 500 million people.
- Goal:
  To consolidate and reinforce the world-leading position that European astronomy has attained at the beginning of this 21st century.
- Method:
  Create an extensive long-term plan for the development of the European astronomy.

ASTRONET in practise





Note:Astronomy ranges from our own solar system to the CMB, and considered all detection technologies

Activities within ASTRONET

- Task 1: Networking
- Task 2: Science Vision for European Astronomy
- Task 3: Building and disseminating a Roadmap for European astronomy
- Task 4:Targeted coordinated actions to strengthen astronomy and astrophysics in Europe
- Task 5: Consortium Management
- Task 6: Consortium Coordination

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Science Vision for European Astronomy

- Working group of experts with a broad background (lead by Tim de Zeeuw)
- 4 Panels of experts
  - A: Do we understand the extremes of the Universe?
  - B: How do galaxies form and evolve?
  - C: What is the origin and evolution of stars and planets?
  - D: How do we fit in?

- Draft version made available for the European astronomers and discussed during the symposium in Poitier (Jan 2007)
- 28 September 2007 publication of:
  "A Science Vision for European Astronomy"

Structure of the Report

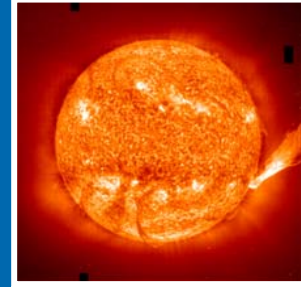
- Introduction
  - Astronomy in society, and role of technology
- Four broad science questions
  - A: Do we understand the extremes of the Universe?
  - B: How do galaxies form and evolve?
  - C: What is the origin and evolution of stars and planets?
  - D: How do we fit in?
- Recommendations
- Appendix with abbreviations and web-links

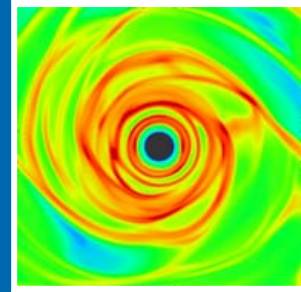
Approach

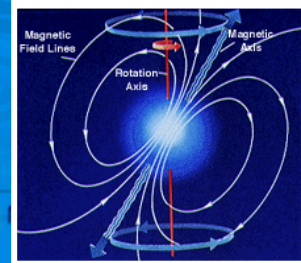
- Four main chapters organized in similar way
  - Brief introduction with background and identification of key sub-questions
  - Each of these is introduced, and specific science questions summarized
  - Most promising approaches described
  - Distinguish Current and Future facilities
  - Distinguish Essential and Complementary facilities
- Science vision is input to Infrastructure Roadmap
  - Existing facilities and those under construction named
  - Not yet approved projects described (mostly) generically
  - Specific proposals/projects to come with the Roadmap

Cross disciplinary requirements

- Theory and simulations
- Computing resources
- Astronomical data management and the Virtual Observatory
- Laboratory astrophysics







Panel A: Do we understand the extremes of the Universe?

How did the Universe begin?

What is dark matter and dark energy?

Can we observe strong gravity in action?

How do supernovae & gamma-ray bursts work?

How do black hole accretion, jets and outflows operate?

What can we learn about the Universe from energetic radiation and particles?

Recommendations coordinated with ASPERA

Panel B: How do galaxies form and evolve?

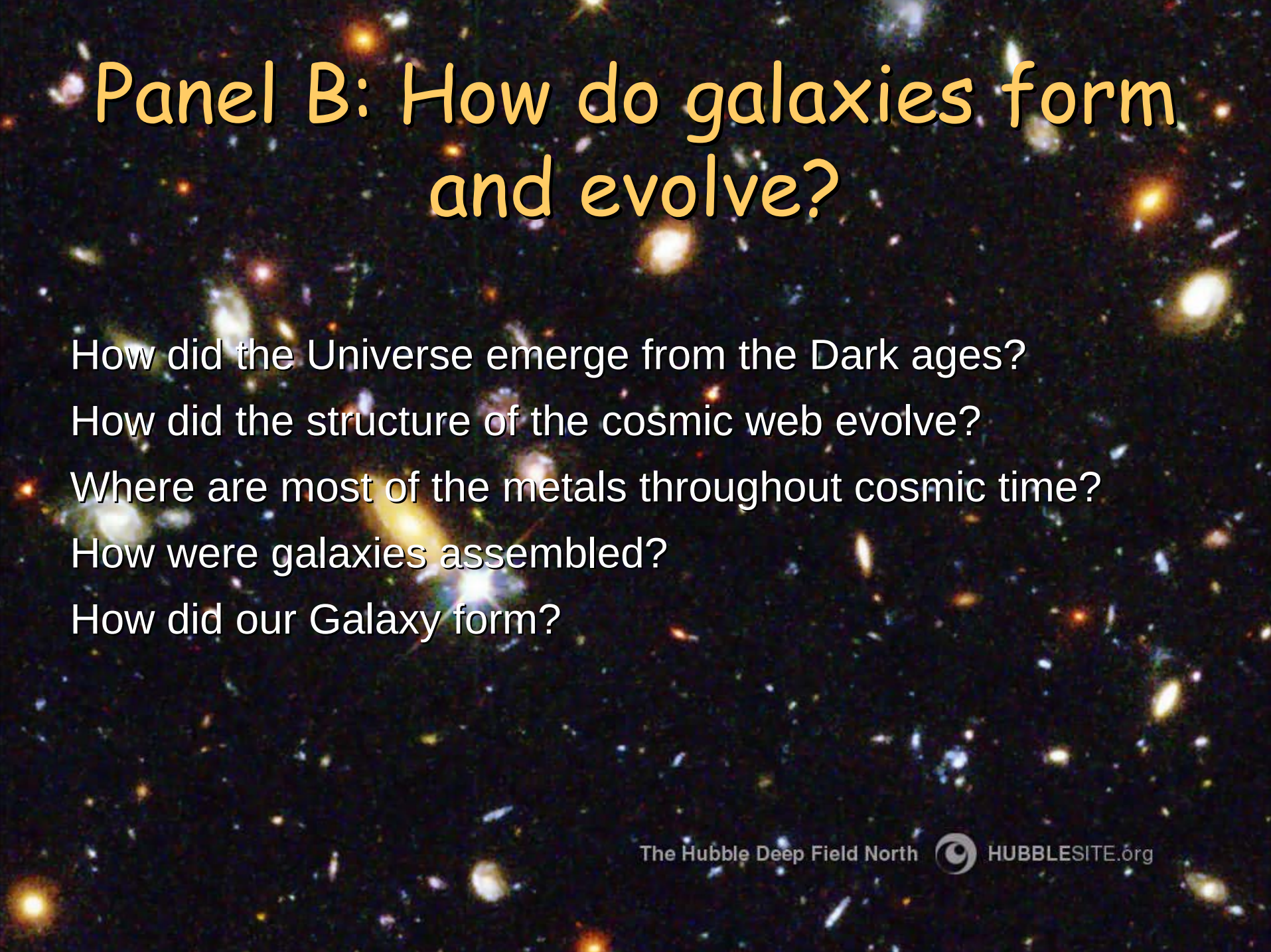
How did the Universe emerge from the Dark ages?

How did the structure of the cosmic web evolve?

Where are most of the metals throughout cosmic time?

How were galaxies assembled?

How did our Galaxy form?



Panel C: What is the origin and evolution of stars and planets?

How do stars form?

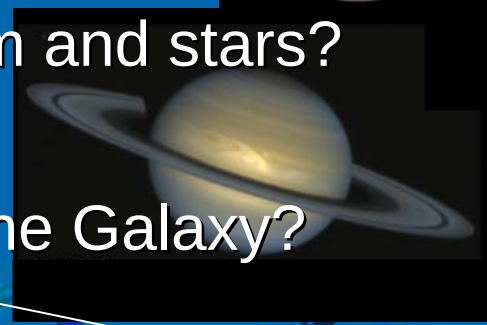
Do we understand stellar structure and evolution?

What is the life-cycle of the interstellar medium and stars?

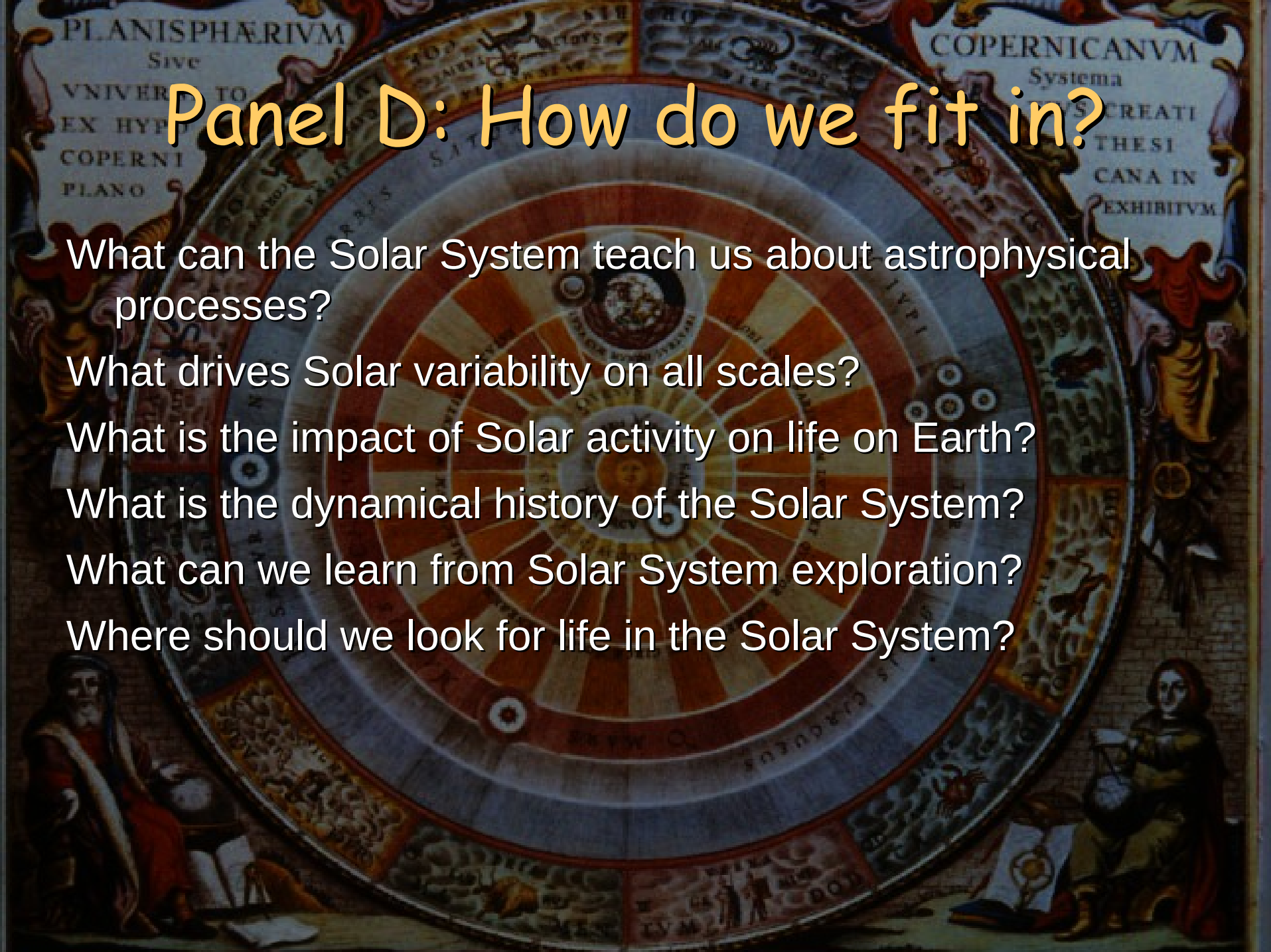
How do planetary systems form and evolve?

What is the diversity of planetary systems in the Galaxy?

Is there evidence for Life on exoplanets?



Orion Nebula



Panel D: How do we fit in?

What can the Solar System teach us about astrophysical processes?

What drives Solar variability on all scales?

What is the impact of Solar activity on life on Earth?

What is the dynamical history of the Solar System?

What can we learn from Solar System exploration?

Where should we look for life in the Solar System?

Conclusions from the Science Vision

- Answering key science questions requires
  - Optimal use of existing facilities + those being constructed!
  - Next generation ground-based telescopes
  - Specific space observatories/missions (cf Cosmic Vision)
  - Dedicated surveys, and investigation of time-domain
  - Supported by theoretical program, numerical simulations and laboratory experiments
- Integrated vision is part of a world-wide endeavour
  - Involves other communities and (space) agencies
  - Opportunity for Europe to take leading role

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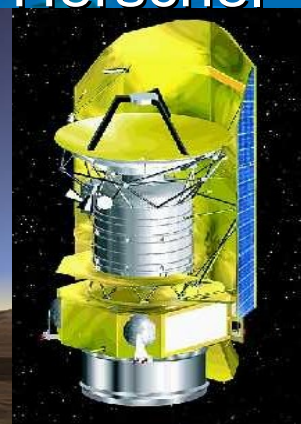
Targeted coordinated actions to strengthen astronomy and astrophysics in Europe

- Goal: (Prepare a) Joint Call for proposals
  “Pilot study with real money”
- 6 participating agencies:
  BMBF, CNRS, FWF, MEC, NWO & SRC
- Theme based on the Science Vision:
  “Common tools for the future large sub-mm facilities”
- Virtual common pot:
  3.2 M€ available
- Learn from each other

ALMA

Herschel



ASTRONET Joint Call
Timeline

- 2007: preparations and coordination
- Jan `08: Pre-announcement of the Joint Call
- Feb `08: Call open
- 15 April `08: Deadline of the call
- Jury = Reviewer & Committee
- Applicants could write a rebuttal on review report
- Aug `08: Jury makes ranking
- Sep `08: Joint Call Board makes recommendation to national agencies.
- Dec ’08: Final approval of all agencies

ASTRONET Joint Call
Results

- 11 Applications
  ~100 applicants, from 9 countries
- Total requested ~7M€
- Top 5 proposals got awarded (>3M€)

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ASTRONET Joint Call
Conclusions

- ASTRONET achieved more than was anticipated
- Applicants, jury and agencies positively evaluated the call.
- Agencies are thinking about a new joint call.
- Points for improvement:
  - National restrictions
  - Shorter time between Joint Call Board recommendation and final national decision


Questions?
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