

Introduction and Mission overview

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Joint Call for a mission from ESA and CAS

- One or two proposals will be selected as the back ground research projects for two years.
- There are 8 back ground research projects for space science in CAS.
- The joint project(s) will be 9th (and 10th) back ground research project(s), but in an independent queue.
- The final decision will be made by both sides together in 2017.

- ▶ The first workshop for a mission from ESA and CAS was held in Chengdu, China on Feb. 24-26, 2014
- ▶ A workshop for ultra low frequency on Aug 14-15, 2014,
- ▶ Then more detail discussion for the joint proposal in Beijing during URSI meeting on August 21, 2014.
- ▶ The second workshop for a mission from ESA and CAS was held in Copenhagen, on Sept. 23-25, 2014

Discovering the

A Sky at

I U Longest

A L U wavelengths

F W

R I

O S

A

Joint Call for a mission from ESA and CAS

DSL major specifications

- Wavelength/frequency range:
 - *mandatory:* 300 – 10 m 1 – 30 MHz
 - *desirable:* 1 km – 10 m 300 kHz – 30 MHz
 - *optional:* 3 km – <10 m 100 kHz – >30 MHz
- Imaging capability:
 - *mandatory:* Dynamic Range (DR) 300:1
 - *desirable:* DR 1000:1 (or confusion-limited)
 - *optional:* DR>3000:1 (or confusion-limited)
- Spectral resolution, $f/\Delta f \geq 250$

Prime: pioneering studies in the hitherto unexplored window of the cosmic EM spectrum

- Full sky continuum **survey** of discrete sources:
 - Ultra-steep spectrum extragalactic sources
 - Pulsars?
 - Transients (galactic and extragalactic)
- Full **sky map** of (galactic) continuum diffuse emission
- Search for signatures of **Dark Ages**
- Recombination radio lines (of “macro-atoms”)?
- Search for “exo-Jupiters”
- Solar-terrestrial physics
- Radio-showers from high-energy particles (and neutrinos) interacting with Moon

Above all, a lesson of science history:

- Discovery of unknown

- ▶ A series teleconferences for DSL were held after the Copenhagen meeting.
- ▶ A f2f meeting was held in Shanghai on Jan. 6, 2015.
- ▶ I think we are on the right direction and have to go ahead for the hard jon.
- ▶ Now we are here.

DSL team - China

- ▶ NSSC (National Space Science Center), CAS:
Jingye Yan, Jianhua Zheng, et al.
- ▶ NAOC (National Astronomical Observatory), CAS:
Xuele Chen, Maohai Huang, Linjie Chen, Fengquan Wu, Mo Zhong, Xiangping Wu, Yihua Yan, Di Li, et al.
- ▶ SHAO (Shanghai Astronomical Observatory), CAS:
Xiaoyu Hong, Tao An, Willem Baan, Weimin Zheng, Zhiqiang Shen, Qinhui Liu, et al.
- ▶ SECM (Shanghai Engineering Centre for Microsatellites), CAS:
Shufan Wu, Wen Chen, et al.
- ▶ SISE (Shanghai Institute of Satellite Engineering):
Zhiyu Cao, Xinbo Zhu, Wei Wang, et al.

Thanks!