

2nd Circular – Workshop of the International Space Science Institute - Beijing (ISSI-BJ)  
and of the International Space Science Institute (ISSI)

## The Disk in relation to the formation of planets and their protoatmospheres

25-29 August 2014

### **Conveners**

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Helmut Lammer	Austrian Academy of Sciences, Graz, Austria
Doug Lin	Univ. of California Observatories, Santa Cruz, USA
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### **Local organisation:**

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### **The Context of the Workshop**

In the end of 2012 ISSI organized a forum on “the science of exoplanets and their systems”, which was held in Bern on December 5<sup>th</sup> and 6<sup>th</sup> with the participation of about 25 of the leading experts in the field. The forum discussed in detail what are the avenues for new progress in our understanding of exoplanets, their distribution, their formation and their characteristics. One of the planned outcomes of the forum was to identify key subjects for future ISSI workshops. The outcome of the forum has been the subject of an article published in *Astrobiology* (Lammer et al., 2013, 793). Among the subjects considered for future workshops, the priority was given to the theme of “*the disk in relation to the formation of planets and their protoatmospheres*”. Indeed, the interrelationship between circumstellar disks, their evolution and their relation to forming planets and their protoatmospheres remains poorly understood despite an increasing body of modeling and observational data. The workshop will address this topic in depth with the participation of the best specialists covering the different aspects of the problem.

## **Objectives of the Workshop**

One great challenge of modern astrophysics is the understanding of the origin and formation of planets around young stars, and of the resulting diversity of planetary objects and their protoatmospheres. It is assumed and for one part observed that planets form inside the circumstellar disks which are one of the characteristics of young stars. But a coherent global picture of how planets and their atmospheres form and evolve inside those disks is yet to emerge. The workshop, with the contribution of the best specialists in that field, will revisit all available scenarios for the joint evolution of disks, planets and atmospheres in the light of the most recent observations and of available models. It will try to establish the most likely scenarios for this co-evolution and from that will seek to improve our understanding of the formation and early evolution of the different types of planets.

## **The Workshop will cover the following main themes:**

The Workshop is designed to review in depth what has been achieved in the research on circumstellar disks and exoplanets. The main goal of the proposed ISSI-Beijing Workshop is to discuss the state of the art of the research and future prospective.

Following discussions by the Conveners, it is proposed that the Workshop will cover the following main themes:

1. Introduction to the theme
2. Formation of planets in protostellar disks
3. Emergence of planetary systems
4. Disk dispersal
5. Atmosphere formation and evolution
6. Debris disks and their evolution
7. The way forward : future observations, facilities and models

This list could, subject to discussion and assessment at the Workshop, become the set of chapter headings for the ISSI-BJ book. All of those attending will be expected to contribute to one or more of the chapters or to the discussions during the talks.

## **Product**

Following the Workshop, its output will be published as a volume in the Space Science Series of ISSI-BJ by Springer, in parallel with the publication of the papers in Space Science Reviews. It is expected that a total of about 6 sections and between 20 and 25 review style and quality papers, submitted to the usual refereeing process will be published in the book. Papers will be based on talks presented at the Workshop and will reflect the discussions that will be held among the participants during the Workshop.

## **Advice to Speakers**

The conveners would like to remind the speakers that ISSI-BJ/ISSI workshops differ in many ways from other, larger gatherings called "workshop". The guiding spirit of the ISSI-BJ/ISSI workshops is interaction between the attendees who are representing, in this case, all aspects

of the disk in relation to the formation of planets and their protoatmospheres. The resulting multi-author chapters should provide a broad view of the current status of this important discipline but, the Workshop should focus on the future directions of the subject – what we are seeking to achieve in the future and what we need to do to get there. This latter aspect includes new missions, new instrumentation and observing methodologies, new analysis techniques and the development of theory. With this in mind, presenters are encouraged to spend a fraction of their talks in addressing future directions and challenges and the barriers that need to be overcome. We anticipate that the extended discussion sessions will seek to emphasise also these aspects.

### **Location (How to reach ISSI-Beijing)**

The Workshop will be held at the International Space Science Institute-Beijing, Beijing, China.  
[http://www.issibj.ac.cn/Visitors\\_Info/Locations/201301/t20130123\\_98475.html](http://www.issibj.ac.cn/Visitors_Info/Locations/201301/t20130123_98475.html)

### **Attendance**

This will be by invitation only. The draft version of the Workshop program and participants list is attached to this 2<sup>nd</sup> circular.

### **Young scientists**

Under its special program for supporting young scientists, ISSI-BJ will invite around five early career scientists, within two years of their PhD, to take a full part in the Workshop. We included in the program a young scientist session on Thursday afternoon.

### **Funding**

ISSI-Beijing will provide the subsistence costs (hotel and a per diem to cover meals) to all participants but not the travel costs. There will be no registration fee for the Workshop.

### **Hotel & VISA**

Block bookings has been made in the [Park Plaza Beijing Science Park](http://www.issibj.ac.cn/Visitors_Info/Hotels/201301/t20130123_98477.html) Hotel; please see [http://www.issibj.ac.cn/Visitors\\_Info/Hotels/201301/t20130123\\_98477.html](http://www.issibj.ac.cn/Visitors_Info/Hotels/201301/t20130123_98477.html), i.e., the maps that indicate the location of ISSI-BJ and of the hotel. All participants of the workshop have already been requested to contact Lijuan En [enlijuan@issibj.ac.cn](mailto:enlijuan@issibj.ac.cn), to indicate their arrival and departure dates and times. Please note that all hotel reservations have to be made by the ISSI Secretariat. If not done already please contact as soon as possible Lijuan En (cc), a confirmation will be returned within a few days.

**Please note, ISSI-BJ office will be closed from 28 July to 8 August for summer holiday.**

In addition, in order to obtain the necessary visa to enter China, please send Lijuan En by e-mail the scanned copy of your passport for issuing the invitation letter.

You will then receive an invitation letter, which you can use for your visa application at your local Chinese Embassy. It is important that you file your visa application well in time. Once all the

forms have been received properly the Chinese Embassy typically needs 4-5 working days to process the visa.

**Schedule**

Invitations and First Circular:	15 May 2014
Second Circular and final program:	22 July 2014
Hotel deadline:	27 July 2014
Workshop:	25 to 29 August 2014