

Second Circular – Workshop of the International Space Science Institute (ISSI)

May 2022

ISSI Workshop on Strong Gravitational Lensing 18 - 22 July 2022

Conveners

Frederic Courbin	EPFL, Lausanne, Switzerland
Maurizio Falanga	ISSI, Bern, Switzerland
Richard McMahon	IoA, Cambridge, UK
Priya Natarajan	Yale University, New Haven, USA
Paul Schechter	MIT, Cambridge, USA
Sherry Suyu	MPA & TUM, Munich, Germany
Joachim Wambsganss	Heidelberg University, Germany & ISSI, Bern, Switzerland
Liliya Williams	University of Minnesota, Minneapolis, USA

Local Organisation/Workshop Secretariat:

Jennifer Fankhauser/Yemisi Momoh, secretary@issibern.ch, +41 31 631 48 96

Objectives and Content of the Workshop

The idea of this Workshop is to take stock of the considerable progress in our understanding of many aspects of strong gravitational lensing that has been made in the last decade. This became possible thanks to a wealth of observations from space and from the ground, through dedicated surveys or serendipitous discoveries, and through big steps forward in modelling and simulations. The current list of foreseen Chapters/Papers is (fine tuning still possible):

1. Basics of strong lensing from theoretical, cosmological & observational perspectives
2. Strong lensing by galaxy clusters
3. Strong lensing by galaxies
4. Gravitational lensing as a cosmic telescope: the (other) sources
5. Strong lensing and micro-lensing of quasars
6. Probing the nature of dark matter on (sub-)galactic scales with strong lensing
7. Time-Delay Cosmography: Estimating Hubble Constant and other cosmological parameters from strong lensing
8. Strong lensing and micro-lensing of supernovae
- X. Strong lensing of GRBs, FRBs and GWs
9. Searching for lenses
10. Microcaustics near macrocaustics
- Y. Wave optics of lenses (tbd)
11. Future directions/facilities/methods

Due to the fact that most chapter drafts exist already, the program of the Workshop will be different from the „classical scheme”. We expect reviews of the chapter drafts, presentations on recent/exciting developments, and many discussions. Every attendee is expected to contribute to one or more of the chapters of the book to be produced. The workshop is by invitation only, due to the limited space ISSI can host 45 participants maximum. The final Workshop program will be compiled by the conveners before/after the last online plenary #14 on May 30, 2022.

Product of the Workshop

Following the Workshop, a book with review papers will be published as a volume in the Space Science Series of ISSI by Springer, in parallel with the publication of the papers in Space Science Reviews. A total of about 8-12 review style papers, submitted to the usual refereeing process, will be published in the book. The papers/chapter have largely been prepared in the previous year. They will be presented in talks, the final versions will also reflect the discussions among the participants during the Workshop.

Location and Travelling to Bern

The Workshop will be held at the International Space Science Institute, Hallerstrasse 6, 3012 Bern, Switzerland. Bern can be reached easily from three international airports: Zurich (ZRH), Basel and Geneva (GVA). Direct intercity trains to Bern depart every half hour from inside the airport buildings; see www.rail.ch for detailed departure times. The travel time is ~1.5 hours from Zurich airport and ~2 hours from Geneva airport. Bern is connected to many European cities by fast intercity trains (e.g. TGV Paris-Bern in 4.5 hours, or Frankfurt-Bern 5 hours). Timetable information of trains within and around Switzerland can be found at www.rail.ch. Also check out our website www.issibern.ch for a few more travel tips such as links to city maps of Bern, weather forecasts, tourist information and so on.

Funding

ISSI will provide the subsistence costs to all participants (i.e. hotel costs plus a per diem), but not the travel costs. There will be no registration fee for the Workshop.

Hotel reservations

A block booking has been made in city centre hotels for the Workshop. All participants at the workshop are **requested to contact the workshop secretaries, Jennifer Fankhauser/Yemisi Momoh** (email: secretary@issibern.ch or Tel. +41-31-631-4896), **to indicate their arrival and departure dates**, as well as any special requests they may have (e.g. double room). Please note that all hotel reservations have to be made by the ISSI Secretariat. Invitation letters for, e.g., visas can be requested by the ISSI Secretariat (same address) and will be sent within a few days.

Workshop Webpage (to be updated):

www.issibern.ch/workshops/gravitationalensing

Schedule/Timeline

Invitations and First Circular:	February 2020
Second Circular and final program:	May 5 2022
Online Plenary #14 with finalising of program:	May 30, 2022
Hotel deadline:	June 15, 2022
Workshop:	July 18 - 22, 2022