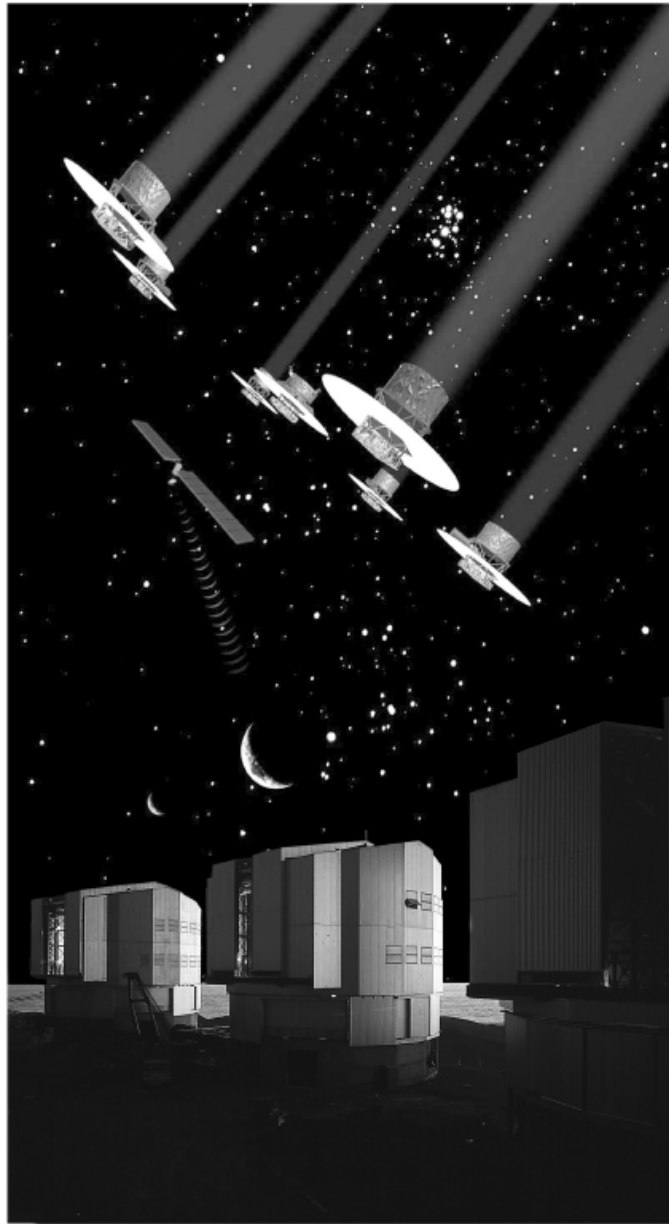


NOVA | LEIDEN | NEVEC | ESO | ESA Workshop
Summer school
on
Space and Ground Based Optical & Infrared



Interferometry

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Course Notes from the

NOVA/LEIDEN/NEVEC/ESO/ESA Workshop: Summer School on Space and Ground Based Optical and InfraRed Interferometry

Leiden, The Netherlands, September 18-22, 2000

http://www.strw.leidenuniv.nl/nevec/summerschool_2000/

Invited Speakers :

P. Léna
A. Quirrenbach
C. Haniff
R. Waters
F. Paresce
A. Léger
G. Lund
R. Le Poole
A. Glindemann
C. Leinert
W. Cotton

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Preface

Stellar interferometry exploits the coherent combination of the light from several telescopes to yield resolutions that are orders of magnitude larger than achievable with a single telescope.

While in the past forty years radio interferometry has evolved into a highly sophisticated observation technique, a similarly successful development has long been precluded at optical/infrared wavelengths by the lack of proper pathlength stabilization techniques to counteract the effects of atmospheric perturbations.

Today, optical/IR interferometry is a field in rapid evolution. Several ground-based systems are already operating. Others are well under construction, such as the Very Large Telescope Interferometer (VLTI) of the European Southern Observatory (ESO), the US Keck Interferometer, and several other around the world.

The first two decades of this new millennium will also witness the launch of the first optical/IR space stellar interferometers, and in particular of ESA's IRSI-DARWIN and NASA's Terrestrial Planet Finder (TPF). These highly challenging instruments will detect earth-like planets orbiting around nearby stars. They will also have imaging capabilities with a resolution of a few milliarcseconds in the thermal infrared, which will allow to gain direct insight in the formation mechanisms of planets, stars, massive black-holes and galaxies.

The Workshop

The Leiden Observatory organized conjointly with NOVA, NEVEC, ESA and ESO, a Workshop on "Space and Ground Based Optical/Infrared Interferometry". The main goal was to contribute to the formation of the young generation researchers that are now entering this field, and who, eventually, will design and use the existing and future optical/IR stellar interferometers.

The Summer School was held 18-22 September, 2000, in the Oort building of the University of Leiden (The Netherlands), and was attended by 75 registered participants.

The main program consisted of series of lectures from eleven invited teachers, which covered the following broad topics:

Introduction to interferometry	P. Léna (Observatory of Paris Meudon, F) A. Quirrenbach (University of California, San Diego, USA)
Major current facilities	A. Quirrenbach (University of California, San Diego, USA) C. Haniff (Mullard Radio Astronomy Observatory, Cambridge, UK)
Science overview	R. Waters (University of Amsterdam, Amsterdam, NL) F. Paresce (European Southern Observatory, Garching, D)
Future space missions	A. Léger (Institute of Space Astrophysics, Paris, F) G. Lund (Alcatel Space, Cannes, F) R. Le Poole (Leiden Observatory, Leiden, NL)
Large ground-based telescopes	A. Glindemann (European Southern Observatory, Garching, D) C. Leinert (Max Planck Institute for Astronomy, Heidelberg, D)
Lessons from radio-interferometry	W. Cotton (National Radio Astronomy Observatory, USA)

The lectures program was complemented by a total of 14 oral presentations from the participants, and a poster session with 24 posters.

The notes

This book is a compilation of the invited lectures and the available presentations and posters which were presented during the Summerschool. The content of this book is also available in pdf format at the school's web site:

www.strw.leidenuniv.nl/~nevec/summerschool_2000

Acknowledgements

We would like to thank the team of lecturers for their enthusiasm and commitment to this workshop. It seems to us important to mention that the summerschool's teachers list coincides with our original "wish list", exception done for one teacher who had his own workshop in September.

Over a nine months period, organizing the Summerschool has been the work of quite some people of the Leiden Observatory. We wish to thank Huub Röttgering and Rudolf Le Poole for their assistance during early planning, the selection procedure, and for contacting sponsors.

A special thank you goes to Janet Soulsby. Her experience in organizing this kind of event was precious in many occasions, as was her lively way of getting things just straight.

The Lorentz Center of the University of Leiden took care of a large part of the school logistics. For this, we wish to thank Hans van Bommel, Martje Kruk-de Bruin, Kirsten Kol and Bertie ten Hove. To Bertie goes our warmest appreciation for her courtesy, her discrete and effective way to solve daily problems related to accommodation, visa, and for organizing the registration desk.

We are most grateful to: Bjorn Heijliger (mailings and audiovisuals), Guido Kusters, who designed the Summerschool poster and provided website maintenance, A. Vos and E. Deul (computer managers), Ronald Heijmans, Arjan van der Wel, Arjen van der Meer, who helped during the workshop opening, and Klaas Weerstra, who had the heavy task of scanning/editing the viewgraphs of the lectures.

We acknowledge the financial support of the Netherlands Research School for Astronomy (NOVA), the European Space Agency (ESA), the European Southern Observatory (ESO), the Lorentz Center of the University of Leiden, and the Royal Dutch Academy of Sciences (KNAW). The Institute of Physics TPD/TNO is kindly acknowledged for having supplied the conference bags.

Last but not least, we wish to thank all the participants for their interest in the school (the actual number of participants exceeded our initial expectations by a factor of two) and their active involvement.

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