

IAU Symposium

362

8–12 November 2021

Virtual Meeting, originally
planned for Chamonix, France

Proceedings of the International Astronomical Union

The Predictive Power of Computational Astrophysics as a Discovery Tool

Edited by

Dmitry Bisikalo
Dmitri Wiebe
Christian Boily

ISSN 1743-9213

International Astronomical Union



CAMBRIDGE
UNIVERSITY PRESS



THE PREDICTIVE POWER OF COMPUTATIONAL
ASTROPHYSICS AS A DISCOVERY TOOL

IAU SYMPOSIUM 362

COVER ILLUSTRATION:

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IAU SYMPOSIUM PROCEEDINGS SERIES

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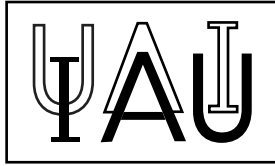
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INTERNATIONAL ASTRONOMICAL UNION
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International Astronomical Union



**THE PREDICTIVE POWER OF
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ASTROPHYSICS AS A
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THE INTERNATIONAL ASTRONOMICAL UNION
VIRTUAL MEETING, ORIGINALLY PLANNED
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**CAMBRIDGE
UNIVERSITY PRESS**

CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom
1 Liberty Plaza, Floor 20, New York, NY 10006, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

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First published 2023

Printed in the UK by Bell & Bain, Glasgow, UK

Typeset in System L^AT_EX 2 ϵ

A catalogue record for this book is available from the British Library Library of Congress Cataloguing in Publication data

This journal issue has been printed on FSCTM-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

ISBN 9781108490665 hardback
ISSN 1743-9213

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Preface

This special volume includes contributions from the IAUS 362 Symposium, *The Predictive Power of Computational Astrophysics as a Discovery Tool*. Computational astrophysics indeed rapidly becomes an indispensable tool for data-handling and making scientific discoveries in astronomy. A spectacular example is the precise calculation of gravitational wave forms coupled with sophisticated algorithms for signal analysis, together enabling a reliable gravitational wave detection. The main objective of this Symposium was to capitalize on these and other exciting advances. Our intention was to bring together both top scientists and students in a broad variety of research fields to summarize major achievements and outstanding challenges from theory and observations.

The initial plan was to hold a meeting in France, in June 2020. For obvious reasons we first had to postpone the Symposium until 2021, and then we decided to make it a fully online event in November 2021. Still, this has not prevented us from having a diverse and fruitful meeting. We have considered various options for organizing this event, including available commercial solutions, and finally decided that a professional Zoom account (kindly provided by the IAU) in combination with a dedicated Slack working space would fit all our needs. That proved to be a viable solution. We also offered a WonderMe space for private discussions.

The list of registered participants is just over 200 and consists of representatives from 35 countries, with two most significant delegations from the USA and Russia. While online meetings do have some disadvantages, the total participant number far exceeds the number of participants that had registered for the initial dates. Online format has allowed the Symposium to be attended by people from underrepresented countries, which would otherwise have not been able to participate.

The scientific program of the Symposium was quite extended with 17 invited talks, 95 contributed talks, and 23 posters, and consisted of whole-day sessions. As we had to take time zones into account, it was impossible to organize truly topical sessions, but we still succeeded in keeping some subject organization, while respecting speakers' comfort. Two technical support teams from Japan and Russia provided Zoom and Slack functioning, distribution of links, time keeping etc.

Overall, the symposium was very inspiring and, hopefully, useful. All the presented talks were quite informative. Of course, some of them raised lots of questions, but it is a normal situation in science, and it does not mean that they are not interesting. The symposium participants were of very different levels, from students to a Nobel prize winner. The range of topics was also very broad, therefore the SOC spent a lot of time trying to combine wideness and deepness. Finally, we managed to reach a good combination of reviews and contributed talks that gave us both an extensive introduction to main topics and the highest level of specific studies.

We wish to express our gratitude to Edouard Audit and his team at CEA for setting up the registration desk and handling the bookings. The Symposium would have been impossible without technical and financial assistance of the University of Tokyo and the Institute of Astronomy of the Russian Academy of Sciences.

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