Advances in Lorentzian Geometry

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Shaker Verlag (2008)

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de.

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Printed in Germany.

ISBN 978-3-8322-7786-4
ISSN 0945-0882

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen
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Overview

Lorentzian geometry is an active field of mathematical research with particular relations to relativity theory.

The main purpose of this exposition is to present novel results in a concise overview and to provide a kind of mind map of the research done by the community today. We hope in particular that this little book serves young researchers who are interested in this topic as a valuable source for information on the frontiers of this field. It includes articles and surveys covering a large variety of topics in Lorentzian geometry, amongst which are:

- Submanifolds of particular causal character,
- Killing and conformal vector fields,
- warped products and foliations,
- Einstein equations, energy conditions and black holes,
- techniques from Riemannian geometry,
- algebraic classification of spacetimes.