

# **1st Meeting on Non-Regular Spacetime Geometry 2017**

Journal of Physics: Conference Series Volume 968

Florence, Italy  
20 - 22 June 2017

## **Editors:**

**Piotr T. Chrusciel  
James Grant**

**Michael Kunzinger  
Ettore Minguzzi**

ISBN: 978-1-5108-5897-8  
ISSN: 1742-6588

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2017) by the Institute of Physics  
All rights reserved. The material featured in this book is subject to  
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 968

**Non-Regular Spacetime Geometry**  
20–22 June 2017, Florence, Italy

**Accepted papers received: 1 February 2018**  
**Published online: 22 February 2018**

### **Preface**

[Non-Regular Spacetime Geometry](#)

[Peer review statement](#)

### **Papers**

[Smoothing causal functions](#)

Patrick Bernard and Stefan Suhr.....1

[Spacetimes in Noncommutative Geometry: a definition and some examples](#)

Fabien Besnard.....8

[The annoying null boundaries](#)

Piotr T. Chruściel and Paul Klinger.....18

[Causal Fermion Systems: A Primer for Lorentzian Geometers](#)

Felix Finster.....33

[The Lorentzian distance formula in noncommutative geometry](#)

Nicolas Franco.....47

[Explicit triangular decoupling of the separated vector wave equation on Schwarzschild into scalar Regge-Wheeler equations](#)

Igor Khavkine.....57

[Connes distance and optimal transport](#)

Pierre Martinetti.....77

[Time functions and  \$K\$ -causality between measures](#)

Tomasz Miller.....84

[The representation of spacetime through steep time functions](#)

Ettore Minguzzi.....94

[On geodesics in low regularity](#)

Clemens Sämann and Roland Steinbauer.....105

[Green operators for low regularity spacetimes](#)

Yafet Sanchez Sanchez and James Vickers.....119

[On the proof of the  \$C^0\$ -inextendibility of the Schwarzschild spacetime](#)

Jan Sbierski.....132