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| Nota di contenuto       | 1. Introduction; Eilish McLoughlin, Odilla E. Finlayson, Sibel Erduran and Peter E. Childs -- PART 1: Innovative Approaches to School Science --<br>2. Science Education: A Balancing Act Between Research in University, Daily Instruction in Schools and Politics in Education Ministries; Peter Labudde --<br>3. Energy teaching at high school based on history and philosophy of science; Manuel Bächtold and Valérie Munier --<br>4. An explorative laboratory study: Changing representations of functional dependencies in physics class of lower secondary school; Marie-Annette Geyer and Gesche Pospiech --<br>5. Multiple external representations (MER) as a component of special language in biology; Christina Beck and Claudia Nerdel --<br>6. Heat angels and paper cups: Discovering pupils' multimodal experiences of heat using thermal cameras; Andreas Larsson, Matilda Stafstedt and Konrad J. Schönborn --<br>7. Science or magic? Reactions of 5 years old pupils to a counter- |

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## Sommario/riassunto

This edited volume presents innovative current research in the field of Science Education. The chapter's deal with a wide variety of topics and research approaches, conducted in a range of contexts and settings. Together they make a strong contribution to knowledge on science teaching and learning. The book consists of selected presentations from the 12th European Science Education Research Association (ESERA) Conference, held in Dublin, Ireland from 21st to 25th August, 2017. The ESERA community is made up of professionals with diverse disciplinary backgrounds from natural sciences to social sciences. This diversity enables a rich understanding of cognitive and affective aspects of science teaching and learning. The studies in this book will stimulate discussion and interest in finding new ways of implementing and researching science education for the future. The twenty-two chapters in this book are presented in four parts highlighting innovative approaches to school science, emerging identities in science

education, approaches to developing learning and competence progressions, and ways of enhancing science teacher education. This collection of studies showcases current research orientations in science education and is of interest to science teachers, teacher educators and science education researchers around the world with a commitment to bridging research and practice in science teaching and learning.

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