Preface PT Seminars 2020

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Non-Hermitian theories that are explicitly PT-symmetric and/or quasi/pseudo-Hermitian have become the subject of an active research field for the last two decades. They constitute well-defined classical and quantum theories possessing real eigenvalue spectra and unitary time-evolution. Since the underlying concepts are generic, the general principles have been applied in essentially all areas of physics and have unravelled new theoretical insights and experimental realisations especially in optical applications.

Beginning in 2003 a regular conference series entitled "Pseudo-Hermitian Hamiltonians in Quantum Physics" has taken place annually to bring together researchers in order to take stock of the current state of the field and to assist participants to collaborate in developing new ideas. Unfortunately, the 20th meeting in this series, which was scheduled originally for 2020 to be held in Los Alamos had to be postponed to 2022 due to the outbreak of the Covid 19 pandemic. To bridge the gap and to provide a platform to allow for a continued exchange of ideas and novelties a virtual seminar series via Zoom with a dedicated website (https://vphhqp.com) was organised by Andreas Fring and Francisco Correa. With currently more than 50 seminars scheduled and well over 200 registered participants, the series is still ongoing. The main motivation behind this special issue has been to allow speakers and participants in this series to present their results in a coherent written in the form of mini-reviews of certain subtopics in the field and new research results.

We hope that this special issue will become a valuable reference and inspiration for a broad scientific community, experts and newcomers alike, working in mathematical and theoretical physics.

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