Fidelity susceptibility as a seeker for quantum phase transitions
WING CHI YU, HO MAN KWOK, Department of Physics, The Chinese University of Hong Kong, Hong Kong, JUNPENG CAO, Beijing National Laboratory for Condensed Matter Physics, Institute of, SHI-JIAN GU, Department of Physics, The Chinese University of Hong Kong, Hong Kong —
Fidelity, a concept emerging from the quantum information theory, has recently become an attractive approach towards the study of quantum phase transitions (QPT). Being the leading response of the fidelity to the external driving parameter, people believed that the fidelity susceptibility (FS) can be used as a seeker for QPT. In this presentation, a brief review on the formulism of FS and its scaling behavior would be given. Also, the analytical result of FS in the one-dimensional transverse-field Ising model and its numerical result in the two-dimensional XXZ and Ising models would be presented.

Hai Qing Lin
Department of Physics, The Chinese University of Hong Kong, Hong Kong