

## CoE-MaSS weekly seminar series

THE DST-NRF CENTRE OF EXCELLENCE IN  
MATHEMATICAL AND STATISTICAL SCIENCES (CoE-MaSS)  
PRESENTS A SEMINAR BY

**Prof Fabio Cinti**  
*(Department of Pure and Applied Mathematics, University of  
Johannesburg)*

*“Novel quasicrystal orders in the realm of quanta”*

Friday, 15 February 2019  
10h30-11h30

CoE-MaSS Seminar Room, 1<sup>st</sup> floor,  
Math Sci Bldg, West Campus, Wits University.



Quasicrystals remain among the most intriguing structures that have been ever discovered, being also largely investigated in physics, chemistry and materials science. Recently, the interest on the subject is not only involving the pursuit of models capable of describing quasicrystals on metallic alloys, self-organised supramolecular micelles and liquid crystals, but also of how possible quantum effects might alter the physics of such orders. This talk presents a thorough study of quasicrystals and cluster crystals where quantum fluctuations are taken into account. Surprisingly, the bosonic model displays that the onset of a zero-point motion at finite temperature produces an interesting new physics, including a clear stabilization of quasicrystals into striped and periodic cluster crystals, or the emergence of quantum quasicrystal phases.

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