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ICTS String Seminar

- Title : Three Avatars of Mock Modularity
- Speaker : Atish Dabholkar, International Centre for Theoretical Physics
- Date : Wednesday, August 12, 2020
- Time : 03:00 pm (IST)
- Abstract : Mock theta functions were introduced by Ramanujan in his famous last letter to Hardy in 1920 but were properly understood only recently with the work of Zwegers in 2002. I will describe three manifestations of this apparently exotic mathematics in three important physical contexts of holography, topology and duality where mock modularity is essential to exhibit modular symmetries expected from the Ad3/CFT2 holographic equivalence in quantum gravity and the S-duality symmetry of four-dimensional quantum gauge theories. In particular, I will show that the completion of mock modular forms occurring in these contexts satisfy a holomorphic anomaly equation. This phenomenon can be related to the holomorphic anomaly of the elliptic genus of a two-dimensional noncompact supersymmetric sigma model, and in a simpler context of quantum mechanics to the Atiyah-Patodi-Singer eta invariant.
- ICTS virtual seminar : Please register at
<https://docs.google.com/forms/d/e/1FAIpQLSf0jLgoqiOgDnxbEBGi uIWiOmh9WX8caH-pr13qDBZOO91lmg/viewform>
(Links to join the seminars will be sent to your registered email address)

Recordings of past talks can be found here:

<https://www.youtube.com/channel/UCw9LdPQ5t7Q7muD0qzn70TA>