OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY
沖縄科学技術大学院大学

THEORETICAL SCIENCES VISITING PROGRAM

TSVP TALK

KNOTS AND MODULARITY

2022 THU. JUL. 7TH

16:00-17:00

HYBRID L4E48, ZOOM

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Knots are objects which appear in nature, science and the arts. We see them while untying our shoelaces, looking under a microscope or admiring the Book of Kells. Knot invariants are quantities defined for each knot which are the same for equivalent knots. Modular forms are analytic objects with intrinsic symmetric properties. They played a key role in the proof of Fermat's Last Theorem and occur in many diverse areas such as mathematical physics, algebraic geometry, combinatorics and black holes. Over the past two decades, there have been hints of intriguing connections between these two seemingly disparate areas. In this lecture, we discuss historical developments and recent striking interactions between quantum knot invariants and a new spectrum of modular forms, namely mock modular and quantum modular forms.

UNIVERSITY COLLEGE DUBLIN

ROBERT OSBURN

Robert Osburn is an associate professor at University College Dublin. He completed his Ph.D. from Louisiana State University in 2001 in the fields of algebraic K-theory and number theory. His recent work has focused on special functions, modular forms, combinatorics and quantum knot invariants.

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