



Pacific Institute *for the*
Mathematical Sciences

PIMS - HUGH MORRIS LECTURE

NORIKO YUI

Thursday, April 25, 2019

Lecture: 3:30 pm

Room ARTS 146

University of Saskatchewan

MODULARITY OF CALABI-YAU VARIETIES



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Noriko Yui is a professor of mathematics at Queen's University in Kingston, Ontario. A native of Japan, Yui obtained her B.S. from Tsuda College, and her Ph.D. in Mathematics from Rutgers University in 1974 under the supervision of Richard Bumby. Known internationally, Yui has been a visiting researcher at the Max-Planck-Institute in Bonn a number of times and a Bye-Fellow at Newnham College, University of Cambridge. Her research is based in arithmetic geometry with applications to mathematical physics and notably mirror symmetry. Currently, much of her work is focused upon the modularity of Calabi-Yau threefolds.

Professor Yui has been the managing editor for the journal *Communications in Number Theory and Physics* since its inception in 2007. She has edited a number of monographs, and she has co-authored two books.

Abstract

I will focus on Calabi-Yau varieties defined over the field \mathbb{Q} of rational numbers (or number fields), and will discuss the modularity/automorphy of Calabi-Yau varieties in the framework of the Langlands Philosophy.

In the last twenty-five years, we have witnessed tremendous advances on the modularity question for Calabi-Yau varieties. All these results rest on the modularity of the two-dimensional Galois representations associated to them. In this lecture, I will present these fascinating results. If time permits, I will discuss a future direction for the realization of the Langlands Philosophy, in particular, for Calabi-Yau threefolds.

WEBSITE: [HTTPS://WWW.PIMS.MATH.CA/SCIENTIFIC-EVENT/190425-HCMLUNY](https://www.pims.math.ca/scientific-event/190425-HCMLUNY)



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