

TITLE	<b>A minicourse about differential operators, quasi-modular forms and Calabi-Yau modular forms.</b>
SPEAKER	<b>Younes Nikdelan</b> UERJ, Rio de Janeiro, and MPIM, Bonn
TIME	Monday, January 24, 2022, 16:30 - 18:00 Wednesday, January 26, 2022, 16:30 - 18:00
VENUE	online: <a href="https://meet.google.com/zoi-mdaj-ghe">meet.google.com/zoi-mdaj-ghe</a>

#### SUMMARY

Since introducing Calabi-Yau varieties, a vast number of works in mathematics and theoretical physics have been dedicated to the study of differential equations which are related to these varieties. The solutions of these differential equations, or system of differential equations, provide us with innumerable infinite series or  $q$ -expansions (Fourier series) with integer coefficients which are generating functions of certain quantities. In lower dimensions, let us say in dimensions 1 and 2 which are elliptic curves and K3 surfaces, usually these encountered  $q$ -expansions are (quasi-)modular forms. But in higher dimensions we can not relate them with the classical quasi-modular forms and call them Calabi-Yau modular forms. This minicourse aims to present these concepts and related facts in two consecutive lectures.