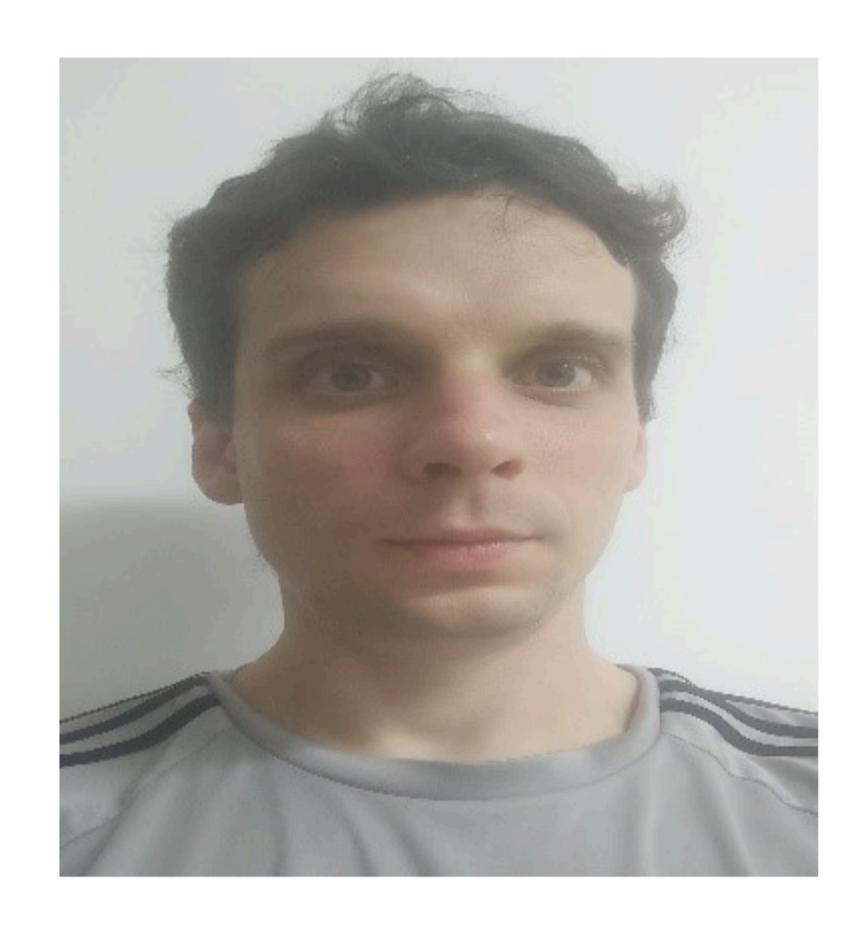# Research Talk - XMUM

COLLINEARITY ON CUBIC SURFACES

October 11, 2024 (Friday), 3:30–4:30 pm Room A4#102

Jan Dobrowolski

Associate Professor
Xiamen University Malaysia

jan.dobrowolski@xmu.edu.my

Research interests: Model theory, algebra, combinatorics, topology.

SPEAKER INTRODUCTION

Dr. Jan Dobrowolski is an Associate Professor at the School of Mathematics and Physics in Xiamen University Malaysia. Dr. Jan Dobrowolski graduated from University of Wroclaw in 2015.

ABSTRACT

Let $t(n)$ denote the maximal number of lines passing through three points of an n-element set of points on a plane. The classical Orchard problem (formulated in 19th century) asked how quickly $t(n)$ grows with n, and what configurations of points witness that, and satisfactory answers were given by Green-Tao in 2012 and Elekes-Szabo in 2013.

We study a version of the Orchard problem for points lying on a smooth cubic surface S, and prove that the only configurations of points admitting asymptotically maximal number of lines through three points contain such a configuration lying on the intersection of S with a plane. Time permitting, I will discuss some other related problems. This is a joint work with M. Bays and T. Zou.