Partitions of $\mathbb{R}^3$ in unit circles and the Axiom of Choice

Azul Lihuen Fatalini

Universität Münster

It is known that $\mathbb{R}^3$ can be partitioned in circles, there is even an explicit construction of such a partition. Moreover it has been proved that $\mathbb{R}^3$ can be partitioned in circles all of which have radius 1. This last proof, however, relies on the Axiom of Choice, particularly, on having a well-order of the reals. In the talk, we will show a model of ZF without a well-order of the reals but in which there is a partition of $\mathbb{R}^3$ in unit circles.

This is joint work (in progress) with Prof. Ralf Schindler.