Eight-dimensional absolute valued algebras

Seidon Alsaody
Uppsala University, Sweden

An absolute valued algebra is a non-zero real algebra endowed with a multiplicative norm. Historical examples are the algebras of real numbers, complex numbers, quaternions and octonions in dimensions 1, 2, 4 and 8, respectively. In 1947, A. A. Albert showed that finite-dimensional absolute valued algebras exist only in these dimensions. They have been classified up to isomorphism in dimension at most four, while in dimension eight, the classification problem is yet unsolved.

In this talk we will give a description of eight-dimensional absolute valued algebras, and some recent results on their structure. These results provide an approach to the classification problem.