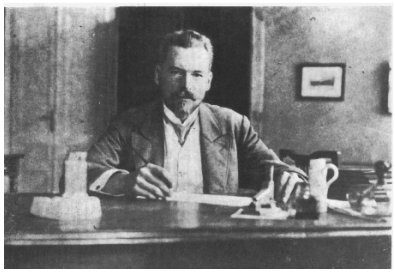

Contribution ID : **25** Type : **Poster**

# Searching for the shape that maximises saturated random sequential adsorption packings

The problem of packing objects into limited space has an ancient history and is still of great importance from both utilitarian and fundamental point of view. Three-dimensional random packings are especially important due to their potential application in a granular matter and life sciences, while two-dimensional packings can, for example, model adsorption monolayers. These packings are generated using random sequential adsorption (RSA) protocol, which bases on consecutive iterations of the following steps:

- a virtual particle position and orientation in case of anisotropic shapes is selected randomly inside the packing;
- if the virtual particle does not intersect with any object on the plane, it is added to the packing. Otherwise, it is removed from the system and abandoned.

Formally, the process ends when there is no large enough space to place another shape, and such packing is called saturated. However, in general, it is hard to determine if given packing is already saturated. Here, we present recent algorithms that allow to generate saturated RSA packing and use them to find the shape, for which obtained packing is the densest.

## Summary

**Primary author(s) :** KUBALA, Piotr (Jagiellonian University); CIESLA, Michal (M. Smoluchowski Institute of Physics, Jagiellonian University, Kraków, Poland)

**Presenter(s) :** KUBALA, Piotr (Jagiellonian University)

**Session Classification :** Session 8