1114-26-45　　　　　　**Oleg Gleizer*** (`prof1140g@gmail.com`). *Fractal Dimensions, from a Math Circle Lesson to a Medical Application.* Preliminary report.

In this talk, we will tell a story of how explaining fractal dimensions to a talented high-school student has resulted into a technology capable of early diagnosing Parkinson's disease based on a voice sample, without ever seeing a patient, with an astonishing near 100% accuracy. The mathematical part of the story is based on Darkhovsky dimension of a signal, a novel way of looking at complexity of functions, continuous and discrete, that seems to have a huge industrial potential, from machine-diagnosing various disorders to finance to information security. (Received July 22, 2015)