Title: Accelerators and Beams: Science, Technology and Art of Operation

Abstract: Beams of charged particles, especially high energy particles, offer unique research opportunities for many branches of physics - from particle physics and nuclear physics, to condensed matter physics or materials physics. Over more than 80 years, scientists have come a long way building accelerators of many types, which vary by characteristics of the generated particle beams such as average energy, particle type, intensity, and dimensions. We have learned that the physics of beams itself (or accelerator physics) is a very rich branch of physics. In my talk I'll briefly go over basics of accelerators, demonstrate what an interesting mix of science and technology modern accelerators are, discuss current challenges faced by accelerator builders and take a look into the prospects of future accelerators.