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## Vector fields and their applications

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Vector fields are models for speed and direction of moving fluid, force fields like electro-magnetic or gravitational, gradients of scalar quantities like temperature, pressure, density, colors in the picture (represented as numbers), etc.

The aim of this talk is to explain what is a *vector field* and discuss their applications in physics, biology, chemistry, medicine, meteorology, and other life sciences.

I will also discuss Poincaré-Hopf theorem describing probably the most general and important property of topological structure of vector fields.