Abstract:

In the first part of my talk I briefly present a neo-Kantian view on mathematics and its relationships with natural sciences, according to which the primary task of doing mathematics is not establishing certain truths as such but making coherent conceptual constructions playing a crucial role in the exploration of our environments that we call (experimental) science. The notion of mathematical ("a priori") truth serves this latter purpose (remind Vladimir Arnold's provocative motto "Mathematics is a part of Physics"). Making explicit the way, in which pure mathematics is involved into sciences, solves Wiegner's puzzle about the "unreasonable effectiveness" of mathematics in these sciences. So the effecitiveness of mathematics is not unreasonable after all.

In the second part of my talk I take the case of Category theory and try to show why this particular mathematical theory is or should be "unreasonably effictive" in a sense in which Set theory is not. Here I analyze the mathematical notion of *map* through its history, demonstrate its epistemic significance, and consider its role in the modern science. In this context I compare geometrical groups with more general geometrical categories and point to some epistemic aspects of such a generalization.