

Invention relates to magnetic separation of solid magnetic nanomaterials from a liquid and can be used in physical, chemical, and biological research. In method for concentrating and extracting magnetic nanoparticles from a liquid, a magnetic system with a strong gradient magnetic field is used to extract magnetic nanoparticles from a channel through which a liquid suspension containing magnetic nanoparticles flows. According to invention, an open channel with laminar flow of a liquid suspension containing magnetic nanoparticles is used to extract magnetic nanoparticles with a size of 2 to 3000 nm, and the magnetic system comprises at least one first magnetic concentrator module and a magnetic trap, which contain a sequence of permanent magnets of vertical magnetization with an alternate change of its direction to the opposite in accordance with Kittel's open-domain structure. At least one first magnetic concentrator module, which is positioned above the flow of liquid suspension in the channel and does not come into contact with it, is used to lift and concentrate magnetic nanoparticles in the surface layer of the flow. A magnetic trap is used to collect magnetic nanoparticles on a non-magnetic substrate immersed in the upper layer of the liquid. Invention provides concentration and extraction of magnetic nanoparticles from the liquid with high efficiency and quality.