A multipole rotor of a magnetoelectric synchronous machine comprises a magnetic core with an active layer located thereon. To simplify design, reliability grow, maintainability increase and enhance of synchronous machine duty the active layer is assembled from prism-shaped radial magnetized magnets having alternating polarity, and non-magnetic insertions therebetween. While located on the magnetic core the constant magnets are retained against the magnetic core surface by said insertions, the insertions are attached by bolts; to the faces thereof non-magnetic rings are fixed in a manner that form together with the insertions a “squirrel cage”, which encloses the constant magnets from all sides and form together with the constant magnets and the magnetic core an electrically and magnetically conductive system.