

Abstract Submitted  
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**New Fusion Concept Using Coaxial Passing Through Each Other Self-focusing Colliding Beams (Invention) IOSEB CHIKVASHVILI** — In proposed Concept it is offered to use two ion beams directed coaxially at the same direction but with different velocities (center-of-mass collision energy should be sufficient for fusion), to direct oppositely the relativistic electron beam for only partial compensation of positive space charge and for allowing the combined beam's pinch capability, to apply the longitudinal electric field for compensation of alignment of velocities of reacting particles and also for compensation of energy losses of electrons via Bremsstrahlung. On base of Concept different types of reactor designs can be realized: Linear and Cyclic designs. In the simplest embodiment the Cyclic Reactor (design) may include: betatron type device (circular store of externally injected particles – induction accelerator), pulse high-current relativistic electron injector, pulse high-current slower ion injector, pulse high-current faster ion injector and reaction products extractor. Using present day technologies and materials (or a reasonable extrapolation of those) it is possible to reach: for induction linear injectors (ions&electrons) – currents of thousands A, repeatability – up to 10Hz, the same for high-current betatrons (FFAG, Stellatron, etc.). And it is possible to build the fusion reactor using the proposed Method just today.

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