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# Orders of Fermi- and Plasma-Accelerations of Cosmic Rays

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The generic acceleration model for ultra high energy cosmic rays, which has been introduced in {\tt 1006.5708 [astro-ph.HE]}, suggests various types of electromagnetic interactions between cosmic charged particles and the different types of the plasma fields, which are assumed to have general configurations, spatially and temporally. The well-known Fermi acceleration mechanisms are also included in the model. Meanwhile Fermi mechanisms in non-relativistic limit adhere first- and secondorder of \$\beta\$, the ratio of particle's velocity relative to the velocity of the stellar magnetic cloud, in the plasma field sector, \$\beta\$ does not play any role, i.e. zero-order. In the relativistic limit, the orders of Fermi acceleration are only possible, when applying the corresponding conditions, either elastic scatterings or shock waves. Furthermore, it is found that the coefficients of \$\beta\$ are functions of the initial and final velocities and the characteristic Larmor radius.

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