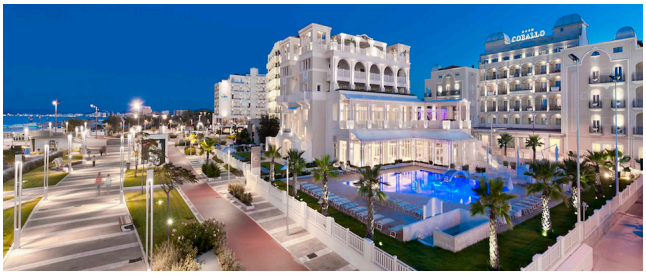

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Anti-shielding of the Coulomb field of relativistic charge in a matter

Monday, 5 June 2023 17:30 (20 minutes)

The Coulomb field of the charged particle in the medium is known to be shielded, due to the response of the material. In this research, we show that, unexpectedly, for the relativistic charge moving inside the medium it is possible that at certain conditions the Coulomb field will be enhanced rather than weakened! This phenomenon is predicted theoretically; we also simulated this process in CST, and the results have confirmed our conclusions. This effect can play a vital part for qualitative understanding of the processes of dynamic polarization of the medium by relativistic charged particle beams, especially when they generate radiation.

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