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# Spectator charge splitting of directed flow in heavy ion collisions

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We estimate the electromagnetic effect of the spectator charge on azimuthal anisotropies observed in heavy ion collisions. For peripheral Pb+Pb reactions at the top energy of the CERN Super Proton Synchrotron, $\sqrt{s_{NN}} = 17.3$ GeV, we predict this effect to bring very large distortions to the observed directed flow, $v_1$, of positive and negative pions emitted close to beam rapidity. The overall magnitude of this effect is comparable to values of $v_1$ reported by the WA98 experiment. We argue that also at lower rapidities, the spectator induced electromagnetic effect may result in the splitting of values of $v_1$ observed for positive and negative pions.
Such a splitting is visible also in the data reported by the STAR Collaboration from the RHIC Beam Energy Scan.
Both effects are sensitive to the space-time scenario assumed for pion emission. Therefore, the electromagnetic splitting brings new information on the collision dynamics. The presentation will be based on our recent preprint [1].

1) A. Rybicki and A. Szczurek, arXiv:1303.7354, submitted to Phys. Rev. {\bf C}.

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