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Chiral Magnetic Effect in QED induced by longitudinal photons

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We demonstrate the existence of the chiral magnetic effect inan electron-positron magnetized gas. A pseudo-vector(conserved)Ohm current is induced by the electric field related to the longitudinal QED mode propagating parallel to the external magnetic field and separating opposite charges of the same heliticity. From a relation between axial and electromagnetic currents we obtain a non-conserved current leading to an expression close to the usual axial anomaly. The effect is interesting in connection to the QCD chiral magnetic case reported in current literature.

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