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Novel chiral structure realized by rotation

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In nonrelativistic many-body systems, rotation produces interesting phenomena as well as external electromagnetic field and finite chemical potential. On the other hand rotational effects on relativistic systems have not been elucidated. Nevertheless it is known that a rapid rotation is realized in main objectives of QCD physics: heavy-ion collisions and neutron stars. In this talk, we construct the framework of the QCD in rotating systems. Based on this, we investigate the chiral structure under the presence of magnetic background and rotation. We suggest that the interplay between magnetic field and rotation leads to the "*rotational magnetic inhibition*"that is a novel phenomenon analogous to the inverse magnetic catalysis.

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