

# Photon production by gluon fusion and gluon splitting in the presence of magnetic fields of arbitrary strength

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## Content

In the context of relativistic heavy-ion collisions, an excess has been detected in the yield of photons and in the strength of the elliptic flow, sometimes referred to as the photon puzzle. It has been argued that, due to the presence of strong magnetic fields in these systems, new channels of photon production can be present and contribute to this excess. To this aim, we study the gluon fusion and the gluon splitting processes into one photon, described by the two-gluon one-photon vertex and give its general structure. We also obtain an explicit expression at a one-loop order for arbitrary magnetic field strengths and analyse its contribution to the photon yield and the photon's elliptic flow.

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