Title: Some attempts to the chiral magnetic effect with inhomogeneous electromagnetic fields

Abstract: It is a long standing problem how to probe the chiral anomaly with physical observables. The chiral magnetic effect is a promising candidate and the theoretical understanding has been advanced for a simple case with constant electromagnetic backgrounds. In the first half of my talk I will make a pedagogical overview of the idea, the status, and the remaining problems. In the last half of my talk I will discuss a description of the current generation in terms of the particle production, which can be solved for constant electromagnetic backgrounds again, but it is still very challenging to tackle temporal and spatial inhomogeneous situations. I will introduce some attempts of ours using a standing wave profile of the electromagnetic fields.