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# Relativistic expansion of bubbles and EW Baryogenesis

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After a brief introduction to phase transitions and explain why they are worth studying, I will examine those in the minimal extension of the SM using a real singlet scalar field. The uniqueness of our study lies in the identification and detailed analysis of a parameter space region where a first-order phase transition with relativistic expanding bubbles can occur. This particular region is intriguing because it may give rise to newly discussed mechanisms for baryogenesis and Dark Matter production. My main focus will be on an EW baryogenesis model that we have investigated, as well as the potential for its discovery in current and future experiments.

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