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Confinement slingshot and gravitational waves

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The gauge "slingshot"effect occurs when a source, such as a quark or a magnetic monopole, crosses the boundary between the Coulomb and confining phases during a first-order phase transition. The corresponding gauge field of the source, either electric or magnetic, gets confined into a flux tube stretching in the form of a string (cosmic or a QCD type) that attaches the source to the domain wall, separating the two phases. The string tension accelerates the source toward the wall as a slingshot. Various sources of other dimensionality also exhibit the slingshot phenomenon, such as cosmic strings confined by domain walls or vortices confined by $_2$ strings. Apart from the field-theoretic value, the slingshot effect has important cosmological implications, as it provides a distinct source for gravitational waves. The effect is expected to be generic in various standard model extensions, such as grand unification.

Primary authors: Prof. DVALI, Gia (Ludwig Maximilians University and Max Planck Institute for Physics); VALBUENA BERMUDEZ, Juan Sebastian (IFAE, Autònomous University of Barcelona); BACHMAIER, Maximilian (Max Planck Institute for Physik, Munich); ZANTEDESCHI, Michael (Max Planck Institute for Physik, Munich)

Presenter: VALBUENA BERMUDEZ, Juan Sebastian (IFAE, Autònomous University of Barcelona)

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