universität innsbruck
Department of Theoretical Physics

Seminar Talk

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"String-breaking of charge flux in dihedral lattice gauge theories"

Abstract

Among the rich and intricate physics of lattice gauge theories (LGTs), string-breaking is one of the most studied physical phenomena associated with confinement. An electric flux connecting - and confining - colored charges over an arbitrary distance can be broken, usually by the creation of a particle-antiparticle pair.

In this seminar, I will discuss the less-known string-breaking process derived from the existence of bound states between a single charge and an electric flux, known as gluelumps. I will motivate their existence in non-Abelian LGTs with arguments from group theory.

I will show results obtained by studying two different dihedrial LGTs, demonstrating the existence of gluelumps in D_3, their masses, and their finite-range interactions in the continuum limit.

Notably, this process allows the study of string breaking in simple discrete non-Abelian LGTs, without the introduction of dynamical matter, making them an ideal setting to test this phenomenology both in numerical calculations and in near-term quantum devices.

Tuesday | 16.12.2025 | 10:00am

Schrödinger-Saal | ICT building