Exposé court

97   *GRACYASK: GRAphs CYcles And SKyrmions: Topological invariants in discrete re-writing fiber bundles*

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In the context of finite lattice systems of fibre bundles, we establish a basic taxonomy of states that preserve continuity [inelastic] property in discrete spaces, trying to find measurable conserved quantities in physical systems, such as winding number or energy. The basic cases have been characterised (OEIS: A081113, A354548) and later we proceed to host diverse field configurations, from domain walls to [mathematical] skyrmions. We determine that these configurations required a minimum size, which can be interpreted as minimal energy useful for optimisation of the stabilization of quantum skyrmions. This comprehensive bottom-to-top approach allows us to uncover the fundamental mathematical properties underlying this mesoscopic phenomenon, to deeper understanding of the problem in other disciplines from magnetism to optics.