Seminarium geometrów

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Poniedziałek, 19.05.2025, 14:15 WS

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Relation morphisms of directed graphs

Abstract: Associating graph algebras to directed graphs leads to both covariant and contravariant functors from suitable categories of graphs to the category k-Alg of algebras and algebra homomorphims. As both functors are often used at the same time, one needs a new category of graphs that allows a "common denominator" functor unifying the covariant and contravariant constructions. In this talk, I will show how to solve this problem by first introducing the relation category of graphs RG, and then determining the concept of admissible graph relations that yields a subcategory of RG admitting a contravariant functor to k-Alg simultaneously generalizing the aforementioned covariant and contravariant functors. I will illustrate relation morphisms of graphs by many naturally occurring examples, including Cuntz algebras, quantum spheres and quantum balls. Although I will focus on Leavitt path algebras and graph C*-algebras, time permitting, I will unravel functors given by path algebras, Cohn path algebras and Toeplitz graph C*-algebras from suitable subcategories of RG to k-Alg. Based on joint work with Gilles G. de Castro and Francesco D'Andrea.

streaming via ZOOM:

Meeting ID: 967 6507 7409

Meeting password: "GS" (two letters) followed by the Euler characteristic of the closed orientable surface of genus 89.