Monogenic functions and basic elliptic equations of mathematical physics

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Timetable: 12 hrs.; Expected starting date November 1st, 2023, ..., Torre Archimede, Room 2BC30.

Course requirements: Basic notions on holomorphic functions in the complex plane and of elementary functional analysis.

Examination and grading: Exam

Aim: studying properties of monogenic functions of a hypercomplex variable and their applications for constructing solutions of equations of mathematical physics

Course contents:
- Determination of hypercomplex algebras associated with the three-dimensional Laplace equation and the biharmonic equation. Commutative harmonic algebras. A biharmonic algebra.
- Differentiation in Banach algebras. The Lorch derivative and the Gâteaux derivative. The principal extension of analytic functions of a complex variable into a commutative Banach algebra.

and possibly also:
- Monogenic functions in infinite-dimensional vector spaces associated with the three-dimensional Laplace equation.

Bibliography:

Main:

Additional: