

Minimal surfaces and Harmonic functions on finitely-connected tori

lundi 15 janvier 2024 11:00 (1 heure)

In this talk, we prove a Logarithmic Conjugation Theorem on finitely-connected tori. The theorem states that a harmonic function can be written as the real part of a function whose derivative is analytic and a finite sum of terms involving the logarithm of the modulus of a modified Weierstrass sigma function.

We implement the method using arbitrary precision and use the result to find approximate solutions to the Laplace problem and Steklov eigenvalue problem. Using a posteriori estimation, we show that the solution of the Laplace problem on a torus with a few holes has an error less than 10^{-100} using a few hundred degrees of freedom. The same estimates and precision are provided for Steklov eigenvalues computation.

In collaboration with C.-Y. Kao and B. Osting.

Orateur: OUDET, Édouard (Université Grenoble Alpes)