A Density Property for Tensor Products of Gradients of Harmonic Functions

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In this talk I will present a recent result showing that linear combinations of tensor products of k gradients of harmonic functions, with k at least three, are dense in C(Ω), for any bounded domain Ω in dimension 3 or higher. This kind of density result has applications to inverse problems for elliptic quasilinear equations/systems in divergence form, where the nonlinear part of the "conductivity" is anisotropic. The talk will be based on the papers [1], [2] written in collaboration with A. Feizmohammadi.

References:
[1] Cârstea CI, Feizmohammadi A. An inverse boundary value problem for certain anisotropic quasilinear elliptic equations. Journal of Differential Equations. 2021 May 25;284:318-49.
[2] Cârstea CI, Feizmohammadi A. A density property for tensor products of gradients of harmonic functions and applications. Journal of Functional Analysis. 2023 Jan 15;284(2):109740.