

H^p theory for separately (α, β) -harmonic functions

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We investigate spaces $sh_{\alpha, \beta}^p$ of separately (α, β) harmonic functions on the unit polydisc. The Dirichlet problem with continuous boundary data on the distinguished boundary T^n for the corresponding system of PDEs is solved. Also, representation and extension theorems are proved for the full range of exponents $1 \leq p \leq +\infty$. Results on convergence in norm and in weak-star topology at the boundary are obtained in analogy with the classical case of Hardy spaces. In addition, properties of so called slice functions are investigated. These are obtained by fixing k variables, for example $u(z_1, \dots, z_{n-k}) = v(z_1, \dots, z_{n-k}, \zeta_1, \dots, \zeta_k)$

References

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