



UC|UP MATH PhD Program

Research Seminar Program UC|UP Joint PhD Program in Mathematics

Date and Time. February 18, 2016 - 14h00

Place. Room M030, Department of Mathematics, University of Porto

Speaker. Helena Gonçalves ¹

Title. Besov and Triebel-Lizorkin Spaces with Variable Exponents

Abstract. After an introduction on classical function spaces, we introduce spaces of Besov and Triebel-Lizorkin type $B_{p,q}^s(\mathbb{R}^n)$ and $F_{p,q}^s(\mathbb{R}^n)$ by Fourier analytical methods and present some properties of those spaces.

Thereafter, we step up to the scale of function spaces with variable exponents, mainly the variable Lebesgue space $L_{p(\cdot)}(\mathbb{R}^n)$. With this space in mind, we introduce two generalizations of $B_{p,q}^s(\mathbb{R}^n)$ and $F_{p,q}^s(\mathbb{R}^n)$: Besov and Triebel-Lizorkin spaces with variable smoothness and integrability $B_{p(\cdot),q(\cdot)}^{s(\cdot)}(\mathbb{R}^n)$ and $F_{p(\cdot),q(\cdot)}^{s(\cdot)}(\mathbb{R}^n)$, and 2-microlocal Besov and Triebel-Lizorkin spaces $B_{p(\cdot),q(\cdot)}^w(\mathbb{R}^n)$ and $F_{p(\cdot),q(\cdot)}^w(\mathbb{R}^n)$. We focus our attention on the last scale, where some properties will be considered.

¹Helena Gonçalves is working as a Research Assistant at Chemnitz University of Technology, Germany in the area of "Analysis" under the supervision of Prof. Henning Kempka.