Sharp bilinear decomposition of the product of Hardy space and its dual

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The study of the bilinear decomposition of the product of functions from the Hardy space and its dual space BMO was originated from the works of Prof. Bonami et al. around 2007. Development on this fileds can help us to improve the boundedness of many nonlinear qualities such as div-curl product and weak Jacobian as well endpoint boundedness of commutators. In this talk, we consider the problem of the sharp bilinear decomposition of the product of Hardy and Campanato spaces on the Euclidean space. Motivated by the characterization of the pointwise multipliers on the Campanato space, we introduce a new kind of Musielak-Orlicz-Hardy space, and establish a sharp bilinear decomposition of the product of Hardy space and its dual. A new strcuture of this Musielak-Orlicz-Hardy space is also dicussed. This is a joint work with Profs. Aline Bonami, Luong Dang Ky, Liguang Liu, Dachun Yang and Wen Yuan.