In 1939 Bose and Nair defined partially balanced incomplete block designs (PBIBDs). These are the partial analogue of BIBDs. More recently, in the early 2000s, Ogata et al. defined a new combinatorial design known as a splitting balanced incomplete block design (splitting BIBD). The motivation for defining splitting BIBDs was to construct AMD codes, a type of cryptographical tool used to protect against attacks from active adversaries.

In this talk I will discuss how two recently introduced combinatorial structures known as disjoint partial difference families (DPDFs) and external partial difference families (EPDFs) may be used to find constructions of these designs.