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Harmonic Index t-design in Hamming Schemes

Abstract:
The notion of harmonic index (or simply HI) spherical design was introduced as a finite set on a sphere in the form extending the notion of usual spherical designs by Bannai-Okuda-T (2015). They studied about a Fisher type inequality and construction for HI spherical design and argued about the non-existence of tight HI spherical designs. While Zhu-Bannai-Bannai-Ikuta-Kim(2017) reintroduced the notion of HI $t$-design in symmetric association schemes and they studied about HI $t$-designs in binary Hamming schemes. In this talk, we will study them in Hamming scheme $H(n,q)$ for arbitrary $q$ following BOT and ZBIK.