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The 14th Case VHS and K3 Fibrations: Overview

We will discuss the construction and applications of Calabi-Yau threefolds admitting fibrations by certain lattice-polarized K3 surfaces of high Picard rank. The construction is motivated by a question of explicit geometric realization of a weight three variation of Hodge structure (VHS) on $\mathbb{P}^1 \setminus \{0, 1, \infty\}$ previously classified by Doran-Morgan.