

**Deligne-Mostow lattices: fundamental domains, line arrangements
and hybrids.**

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Abstract: We will talk about lattices in the group $\mathrm{PU}(n,1)$ of holomorphic isometries of complex hyperbolic space. A well known class is that of the Deligne-Mostow lattices. I will describe different interpretations of these lattices and explain how one can use Thurston's interpretation to build fundamental domains for them. Then I will explain how Hirzebruch's line arrangements construction of the Deligne-Mostow lattices is related to the fundamental domains. Finally I will tell you how we used this connection to go a step forward towards finding a possible complex equivalent to the hybrid construction. This is a joint work with Elisha Falbel.