Affine Geometry and the Legendre Transform

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The combinatorial duality used in Gross-Siebert approach to mirror symmetry is the discrete Legendre tranform of a polarized integral tropical manifold $(B, P, \phi)$ where $B$ is an affine manifold with singularities, $P$ is its polyhedral decomposition, and $\phi$ is a multi-valued piecewise linear function on it. In this talk we will give precise definitions of these objects and the discrete Legendre transform, accompanied by a detailed treatment of an example coming from reflexive polytopes.