The classical Torelli problem asks whether a smooth projective variety can be recovered from the Hodge structure on its middle cohomology. A log Calabi-Yau variety $U$ is quasiprojective, so has a Deligne mixed Hodge structure on its middle cohomology, and one can similarly ask to what extent $U$ can be recovered from its mixed Hodge structure. The situation is well-understood in dimension 2 due to work of Gross-Hacking-Keel. I will present partial results in the 3-dimensional case, and applications to the Morrison-Kawamata cone conjecture. This is work in progress with Paul Hacking.

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