On the linearity of order-isomorphisms

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A basic problem in the theory of partially ordered vector spaces is to understand when order-isomorphisms are affine. This depends in a subtle way on the geometry of the cones involved. In this talk I will discuss some recent progress on this problem, mainly based on joint with van Gaans and van Imhoff. We will introduce a new condition on the extreme rays of the cone, which ensures that all order-isomorphisms are affine. The condition is milder than existing ones and is satisfied by, for example, the cone of positive operators in the space of bounded self-adjoint operators on a Hilbert space.