

Aspects of the semi-regularity map

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The semi-regularity map was first defined by Kodaira-Spencer as the boundary map coming from the normal short exact sequence associated to a divisor contained in a smooth, projective variety. This was later generalized to the case of any local complete intersection sub-varieties by Bloch. The semi-regularity map plays a crucial role to relate Hodge locus to the deformation of associated algebraic cycle. Furthermore, semi-regular sub-varieties (sub-varieties for which the associated semi-regularity map is injective) satisfy a strong form of the variational Hodge conjecture. In this talk we will discuss such properties of the semi-regularity map.