

## Mathematical Physics seminar at BU

### **On renormalization in coordinate space**

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Morally, perturbation theory in coordinate space and momentum space are only a Fourier transform away from each other. One may therefore hope - despite the somewhat diverging literature the two schools have been producing over the years - that exciting new ideas in one approach pertain to the other approach as well, once one sits down and carefully works out the Fourier duality. We'll have a fresh look at renormalization in coordinate space from the perspective of a recent paper by Bloch, Esnault and Kreimer. This means roughly: Looking for physically relevant quantities which may be written as periods of mixed Hodge structures on the cohomology of certain varieties, and then studying as much detail as possible about these mixed Hodge structures. The second half of the talk is devoted to renormalization of subdivergences from the point of view of algebraic geometry.

<http://math.bu.edu/research/mathphys/seminar.html>