THE UNIVERSITY OF HONG KONG

Department of Mathematics

C O L L O Q U I U M

On the Notion of Geometric Triplet on a Vector Bundle and its Application to Color Image Restoration

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Abstract

In the first part of the talk, I will present the notion of geometric triplet on a vector bundle. In particular, I will introduce an extension of the (Euclidean) Total Variation to vector bundles by means of a geometric triplet, called Vector Bundle Total Variation.

Then, I will show that some geometric triplets, which arise as critical points of an energy, have an interpretation in terms of imaging and vision.

In the second part of the talk, I will present local variational models for color image restoration whose regularizing term is a Vector Bundle Total Variation. I will show that, for well-chosen geometric triplets, the models outperform comparable models on denoising and deblurring. Then, I will show that the results can be improved by adding a deep image prior to the models.

In the last part of the talk, I will present a nonlocal extension of the notion of geometric triplet, from which can be derived a non local extension of the variational models presented in the second part of the talk. Results on details and contrast reduction/enhancement will be presented.

Date:	March 18, 2021 (Thursday)
Time:	4:30 - 5:30 p.m. (HK time) 9:30 - 10:30 a.m. (Spain time)
Venue:	ZOOM: https://hku.zoom.us/j/ Meeting ID: 997 4485 8289

All are welcome