Portorož 2023: Particle Physics from Early Universe to Future Colliders

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What Can Vector-Like Quarks Do For You

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We emphasize the analogy between Vector-Like Quarks (VLQ) and Right Handed Neutrinos, illustrating how VLQ lead to naturally supressed FCNC and naturally small violations of 3x3 unitarity in the CKM matrix. VLQ provide a simple solution to the puzzle of eventual lack of unitarity in the first line of the CKM matrix and also provide a framework to have a realistic model with spontaneous CP violation with a complex CKM matrix, generated by real Yukawa couplings.

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