Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **3432** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) One problem in a ʻmelonʼ(milion)

Wednesday, 8 June 2022 13:45 (15 minutes)

It was recently showed that the dual to the vector space of Feynman integrals have a very physical interpretation through unitary cuts. In this talk, we want to use this new technology to answer questions at two-loop. In particular, we initiate the loop-by-loop program and investigate the recursive loop-structure of the ʻwatermelonʼ diagram, which is relevant for self-energy calculations in Quantum Field Theory. We will discuss it's first iteration, which boils down to extracting the two-loop watermelon (sunrise) differential equation from one-loop watermelon (bubble) data. We will also elaborate on connections between the so-called ʻcanonicalʼdifferential equations, ε-factorized differential equations and modular invariance.

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Session Classification: W2-2 Fields, Particles, and Strings II (DTP) | Champs, particules et cordes II (DPT)

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