



## NUMBER THEORY SESSION

# ON THE SEEDS AND THE GREAT-GRANDCHILDREN OF A NUMERICAL SEMIGROUP.

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14h - 14h40

Online

### **Abstract.**

We present a revisit of the seeds algorithm to explore the semigroup tree. First, an equivalent definition of seed is presented, which seems easier to manage. Second, we determine the seeds of semigroups with at most three left elements. And third, we find the great-grandchildren of any numerical semigroup in terms of its seeds. The algorithm has been used to prove that there are no Eliahou semigroups of genus 66, hence proving the Wilf conjecture for genus up to 66. We also found three Eliahou semigroups of genus 67. One of these semigroups is neither of Eliahou-Fromentin type, nor of Delgado's type. However, it is a member of a new family suggested by Shalom Eliahou.

**Keywords:** numerical semigroup, exploring algorithm, seeds of a numerical semigroup.

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