1138-05-342   **Peter Nelson** and **Jorn van der Pol*** (`jornvanderpol@gmail.com`). *Doubly exponentially many Ingleton matroids.*

The rank function of a representable matroid satisfies a linear inequality known as Ingleton's Inequality. We call a matroid Ingleton if it satisfies Ingleton's Inequality. Although every representable matroid is Ingleton, it is not true that every Ingleton matroid is representable. This raises the question how well Ingleton's Inequality characterises representable matroids.

We show that there are many more Ingleton matroids than there are representable matroids. More precisely, we show that the number of Ingleton matroids grows doubly exponentially as a function of the size of the ground set, which is much faster than the (singly exponential) growth of representable matroids. It follows that almost every Ingleton matroid is non-representable. (Received February 12, 2018)

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