The Green-Tao theorem for number fields (and beyond)

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Green and Tao famously proved that there are arbitrarily long arithmetic progressions of prime numbers. Around the same time, Tao proved an analogue for the Gaussian integers: the prime elements in the ring of Gaussian integers contain constellations of arbitrary shapes.

I will explain our generalization of their results to the context of prime elements in general number fields, a joint result with M. Mimura, A. Munemasa, S. Seki and K. Yoshino.

Time permitting, I will describe my recent attempt to deepen this result, following the work of Green-Tao-Ziegler on more complex linear patterns of prime numbers.