



Vienna School
of Mathematics

PhD Colloquium

Itamar Israeli

The Angel Problem, the Firefighter Problem, and Everything In Between.

Abstract: The Containment Game is a two-player perfect-information game, initialised with a finite set of occupied vertices in an infinite connected graph G . On the t -th turn, the first player, called *Spreader*, replaces the occupied set with a collection of $g(t)$ vertices adjacent to it; the second player, called *Container*, then removes q unoccupied vertices from the graph. If the spreading process continues indefinitely, Spreader wins; otherwise, Container wins. For $g \equiv 1$ it is equivalent to the classical Conway's angel problem, while for $g = \infty$ it reduces to a solitaire game for Container, known as the *Firefighter Problem*.

In this talk I will give a glimpse into the known solutions to both classical problems, then outline our study of the question "how much can Spreader be weakened so that it is still as strong as possible?". Joint work with Ohad Noy Feldheim.

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