**Institute for Mathematics and its Applications**
**2012 Seminar Series**
University of Wollongong

**Title**: Archimedes' Stomachion: The World's Oldest Puzzle

**Speaker**: Douglas Rogers (University of Hawaii)

**Time and Date**: 3:30pm, Thursday 27 September 2012

**Location**: Room 32.G01

**Abstract**: Archimedes' Stomachion, a game based on a geometrical dissection, has been called "the World's Oldest Puzzle". It has been in the news again, with progress in reading the Archimedes Codex eliciting a novel combinatorial interpretation. No examples are known to have survived, making both moves and board something of a puzzle in themselves. The presumption that the board is a square is open to challenge: such a board is difficult to fabricate and awkward to use, on account of the sharp angles required; and most likely the Arabic text has been mistranslated. But, in reappraising the subject afresh, what tells most against the square board, and in favour of a double square board, is the geometry that, strangely enough, seems to be have been overlooked.

Our review also returns to focus on individuals from the previous century who figure in the, notably Richard Oldham, FRS (1858-1936), better known for identifying the Earth's core, who proposed a double square board in a letter to Nature in 1926.

The Stomachion board also has suggestive Archimedean echoes. Whether square or double square, the board features several centroids of triangles that help determine the proportional areas of the pieces of the dissection. The principal lines of the dissection give a geometrical approach to recurrence relations and rational approximations, to the square root of 2 in the case of the double square board and to the Golden Ratio in the case of the square board.