

# Abstract for the EMPG 1999 Meeting in Mannheim

## Twelve Years of Modelling of Stereokinetic Phenomena

Mario Zanforlin<sup>1</sup>, Luigi Beghi<sup>2</sup>, & Elisabetta Xausa<sup>3</sup>

<sup>1,3</sup>*Department of General Psychology*

<sup>2</sup>*Department of Pure & Applied Mathematics  
University of Padua*

*Via Belzoni 7, 35131 Padova, Italy*

<sup>1</sup>zanf@psico.unipd.it, <sup>2</sup>beghi@math.unipd.it,

<sup>3</sup>xausa@psico.unipd.it

Stereokinetic phenomena are 3-D percepts produced by 2-D figures rotating on the frontal plane. The mathematical model was based on a hypothesis of minimization of the velocity differences between the various points of the configuration. The main phenomena considered were: the apparent cone, produced by a rotating disk with an excentric dot inside it; the tilted disk and the ellipsoid, produced by a rotating ellipse; the tilted line segment, generated by a rotating line segment of constant length. Generalizing the model to periodic translational movements on the frontal plane we considered, among others, the swinging gate, produced by a vertical line periodically receding from and approaching a stationary vertical line of the same length. In all examined cases the theoretical predictions were in good agreement with the experimental results, obtained by asking the subjects to evaluate the apparent displacement in depth of the perceived images. The problem we are now facing is the apparent movement in depth of vertical line segments and of vertical rectangles of constant width, undergoing periodical contractions with simultaneous lateral displacements.

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