

**Meeting:** 1003, Atlanta, Georgia, MAA CP E1, MAA Session on Mathematics in the Islamic World

1003-E1-433      **Eelco A Nederkoorn\*** (e.a.nederkoorn@students.uu.nl), Department of Mathematics, University of Utrecht, P.O. Box 80.010, 3508 TA Utrecht, Utrecht, Netherlands, and **Jan P Hogendijk** (hogend@math.uu.nl), Department of Mathematics, University of Utrecht, P.O. Box 80.010, 3508 TA Utrecht, Utrecht, Netherlands. *A computer-programmed version of a medieval Islamic instrument for the determination of the direction and distance to Mecca.*

In 1999, David King (Frankfurt, Germany) published a book on a recently discovered instrument for determining the distance and direction to Mecca from any locality in the medieval Islamic world. Three such instruments are now known to exist; they were all made in Isfahan in Iran some 300 years ago. The second author has studied the mathematics and the history of this sophisticated instrument, and he has related the underlying projection to a traditional tenth-century construction of the qibla (direction of Mecca). Using a computer and satellite images of the earth, the first author has programmed the instrument and extended the principle so the instrument can be used to cover the whole earth. The presentation will mainly consist of an introduction to this modern version of the instrument. Each participant will receive a model of the instrument and learn how to work with it. (Received September 14, 2004)