1056-60-1404 **Ben J Morris*** (morris@math.ucdavis.edu), Department of Mathematics, One Shields Ave, Davis, CA 95616, and **Phillip Rogaway** and **Till Stegers**. *How to encipher small messages: Encryption using the Thorp shuffle.*

The Thorp shuffle is defined as follows. Cut the deck into two equal piles. Drop the first card from the left pile or the right pile according to the outcome of a fair coin flip; then drop from the other pile. Continue this way until both piles are empty. We analyze the Thorp shuffle and its application to a problem in cryptography. No prior knowledge of cryptography is assumed. Based on joint work with Phillip Rogaway and Till Stegers. (Received September 22, 2009)