This technical report is the Emerging Trends proceedings of the 22th International Conference on Theorem Proving in Higher Order Logics (TPHOLs 2009), which was held during 17--20 August 2009 in Munich, Germany. TPHOLs covers all aspects of theorem proving in higher order logics as well as related topics in theorem proving and verification. In keeping with longstanding tradition, the Emerging Trends track of TPHOLs 2009 offered a venue for the presentation of work in progress, where researchers invited discussion by means of a brief introductory talk and then discussed their work at a poster session.