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## **Emerging flux simulations**

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**Abstract.** We present preliminary results of magneto-convection simulations of the rise of initially horizontal, untwisted magnetic flux from 20 Mm depth through the near surface convection to the solar surface in a domain 48 Mm wide. The magnetic field is transported upward by diverging upflows and magnetic buoyancy, and pulled down by downdrafts, which produces a hierarchy of loop like structures, of increasingly smaller scale as the surface is approached. Diverging upflows sweep the magnetic field to the boundaries of granules and then more slowly to ‘meso-granule’ scales and on a still longer time scale possibly to supergranule scales to form a magnetic network. Pores form where the magnetic field gets sufficiently concentrated.