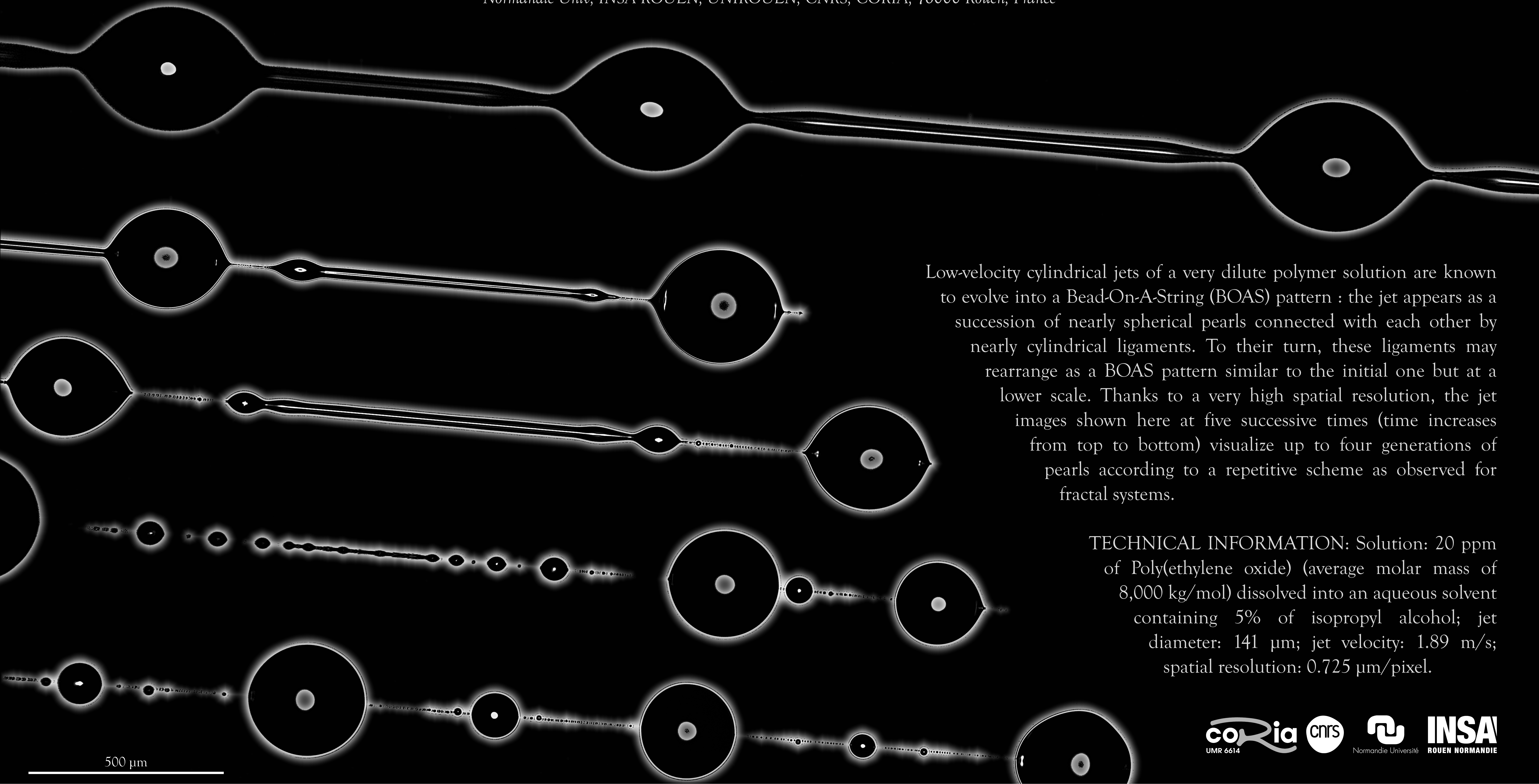


Fractal Pearling

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Low-velocity cylindrical jets of a very dilute polymer solution are known to evolve into a Bead-On-A-String (BOAS) pattern : the jet appears as a succession of nearly spherical pearls connected with each other by nearly cylindrical ligaments. To their turn, these ligaments may rearrange as a BOAS pattern similar to the initial one but at a lower scale. Thanks to a very high spatial resolution, the jet images shown here at five successive times (time increases from top to bottom) visualize up to four generations of pearls according to a repetitive scheme as observed for fractal systems.

TECHNICAL INFORMATION: Solution: 20 ppm of Poly(ethylene oxide) (average molar mass of 8,000 kg/mol) dissolved into an aqueous solvent containing 5% of isopropyl alcohol; jet diameter: 141 μm; jet velocity: 1.89 m/s; spatial resolution: 0.725 μm/pixel.