# Wavelength and width selection in confined Bénard-von Kármán streets

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Last year, Boniface *et al.* have shown that a tape moving at high speed on the free surface of a closed tank can develop organized but fluctuating vortex streets of Bénard-von Kármán type, which representative points remain inside a well-defined "tongue" of the phase diagram built upon the ratios $a/c$ and $b/c$ measuring the lateral confinement ($a$ is the distance between vortices inside each line of vortex, $b$ the distance between the two lines, $c$ the width of the tank) [1]. This tongue, calculated long ago by Rosenhead [2], for point vortices moving in the complex plane is not fully explored, suggesting that other selection mechanisms are at play in this system. Recently we have built a stability analysis of the observed mean flow, and developed some qualitative arguments in terms of the finite size of the vortex cores that allowed us to reduce the allowed region of the phase diagram explored by this experiment. I will present briefly these efforts. A full theory, including all the effects above (i.e mutual interaction between vortices of finite non zero core diameters) remains to be built.

## Références

1. P. Boniface, L. Lebon, F. Bouillet, M. Receveur & L. Limat, Stabilité absolue de Bénard-von Kármán confinée engendrée par deux instabilités couplées de Kelvin-Helmholtz, *in Comptes-Rendus de la 17e Rencontre du Non-Linéaire*, pp. 11–16 (2014).
2. L. Rosenhead, The Kármán street of vortices in a channel of finite breadth, *Phil. Trans. R. Soc. London*, **228**, 275–328 (1929).