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Construction d'une base spéciale pour la résolution de quelques problèmes d'océanographie physique en dimension deux. (Construction of a special basis for the solution of some two dimensional problems in physical oceanography). (French) [Zbl 0747.76047](#)
C. R. Acad. Sci., Paris, Sér. I 314, No. 7, 587-590 (1992).

Summary: This note deals with some peculiar properties of the eigenfunctions basis of the problem: $-\Delta u = \lambda u$ in $\Omega \subset \mathbb{R}^2$, with $u \cdot n = 0$ and $\text{rot} u = 0$ on the frontier γ of Ω , and where u is a function of Ω into \mathbb{R}^2 . The main result pointed out is that a divergence free functions basis can be extracted, providing a particular suitable way of projecting the nonlinear terms of the equations presented.

Reviewer: [Reviewer \(Berlin\)](#)

MSC:

[76D33](#) Waves for incompressible viscous fluids
[35Q30](#) Navier-Stokes equations
[86A05](#) Hydrology, hydrography, oceanography

Cited in **8** Documents

Keywords:

[eigenfunctions basis](#); [divergence free functions basis](#)