

YU. D. CHASHECHKIN ON INTERNAL WAVES

(compiled by Bruno Voisin on 12 October 2007)

Emission of linear lee waves

Three-dimensional waves from a sphere

Makarov, S. A. & Chashechkin, Yu. D. (1981) [Apparent internal waves in a fluid with exponential density distribution](#). *J. Appl. Mech. Tech. Phys.* **22** (6), 772–779. [Transl. from *Zh. Prikl. Mekh. Tekh. Fiz.* (6), 47–54.] Received 13 October 1980.

Makarov, S. A. & Chashechkin, Yu. D. (1982) Coupled internal waves in a viscous incompressible fluid. *Izv. Atmos. Ocean. Phys.* **18** (9), 758–764. [Transl. from *Izv. Akad. Nauk SSSR Fiz. Atmos. Okeana* **18** (9), 986–994.] Received 22 July 1981; revised 3 February 1982.

Chashechkin, Yu. D. (1995) Small- and large-scale structures of the decaying turbulence in a continuously stratified liquid. In *Small-Scale Structures in Three-Dimensional Hydrodynamic and Magnetohydrodynamic Turbulence* (ed. M. Meneguzzi, A. Pouquet & P.-L. Sulem), pp. 205–212. Springer. Presented 10–13 January 1995.

Smirnov, S. A. & Chashechkin, Yu. D. (1998) [Internal lee \(joined\) waves at an arbitrary orientation of the incident flow](#). *Izv. Atmos. Ocean. Phys.* **34** (4), 475–482. [Transl. from *Izv. Ross. Akad. Nauk Fiz. Atmos. Okeana* **34** (4), 528–536.] Received 13 May 1997; revised 8 September 1997.

Two-dimensional waves from a horizontal plate

Chashechkin, Yu. D., Mitkin, V. V. & Bardakov, R. N. (2004) Fine structure of stratified flow around uniformly moving 2D obstacles in a continuously stratified fluid. In *Shallow Flows* (ed. G. H. Jirka & W. S. J. Uijttewaal), pp. 143–148. Balkema. Presented 16–18 June 2003.

Chashechkin, Yu. D. & Bardakov, R. N. (2004) [Two-dimensional attached internal waves and concomitant boundary layers](#). *Dokl. Earth Sci.* **397** (5), 677–681. [Transl. from *Dokl. Ross. Akad. Nauk* **396** (6), 813–818.] Presented 11 March 2004; received 12 March 2004.

Chashechkin, Yu. D., Mitkin, V. V. & Bardakov, R. N. (2006) [Streaky structures in the stratified flow over a horizontal strip](#). *Dokl. Phys.* **51** (8), 454–458. [Transl. from *Dokl. Ross. Akad. Nauk* **409** (6), 774–778.] Presented 8 December 2005; received 9 December 2005.

Emission of linear transient waves

General case

Chashechkin, Yu. D. & Makarov, S. A. (1984) Time-varying internal waves. *Dokl. Earth Sci. Sect.* **276** (3), 210–213. [Transl. from *Dokl. Akad. Nauk SSSR* **276** (5), 1246–1250.] Presented 23 September 1983.

Fluid particle in a vertical wake

Smirnov, S. A., Chashechkin, Yu. D. & Il'inykh, Yu. S. (1998) [High-accuracy method for measuring profiles of buoyancy periods](#). *Meas. Tech.* **41** (6), 514–519. [Transl. from *Izmer. Tekh.* (6), 15–18.]

Propagation of linear monochromatic waves

Reflection

Kistovich, Yu. V. & Chashechkin, Yu. D. (1993) Reflection of packets of internal waves from a plane rigid boundary. *Izv. Atmos. Ocean. Phys.* **29** (6), 796–801. [Transl. from *Izv. Ross. Akad. Nauk Fiz. Atmos. Okeana* **29** (6), 831–836.] Received 11 May 1993.

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Chashechkin, Yu. D. & Kistovich, Yu. V. (1995) Geometry and energetics of an internal wave beam. *Dokl. Ross. Akad. Nauk* **344** (5), 684–686 [in Russian]. Presented 29 December 1994; received 30 December 1994.

Kistovich, Yu. V. & Chashechkin, Yu. D. (1997) [Geometry and energetics of beams of internal waves](#). *Izv. Atmos. Ocean. Phys.* **33** (1), 36–41. [Transl. from *Izv. Ross. Akad. Nauk Fiz. Atmos. Okeana* **33** (1), 41–47.] Received 18 January 1995; revised 4 July 1995.

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Refraction

Chashechkin, Yu. D. & Kistovich, Yu. V. (1998) [Monochromatic internal waves in an arbitrarily stratified viscous fluid](#). *Dokl. Earth Sci.* **359** (2), 302–305. [Transl. from *Dokl. Ross. Akad. Nauk* **359** (1), 112–115.] Presented 18 November 1996; received 19 November 1996.

Kistovich, Yu. V. & Chashechkin, Yu. D. (1998) [Linear theory of the propagation of internal wave beams in an arbitrarily stratified liquid](#). *J. Appl. Mech. Tech. Phys.* **39** (5), 729–737. [Transl. from *Prikl. Mekh. Tekh. Fiz.* **39** (5), 88–98.] Received 19 December 1996.

Dispersion

Chashechkin, Yu. D. (2005) Mathematical and laboratory modelling of stratified flows. In [New Trends in Continuum Mechanics](#) (ed. M. Mihailescu-Suliciu), pp. 55–66. Theta Foundation. Presented 8–12 September 2003.

Chashechkin, Yu. D. & Kistovich, A. V. (2004) [Classification of three-dimensional periodic fluid flows](#). *Dokl. Phys.* **49** (3), 183–186. [Transl. from *Dokl. Ross. Akad. Nauk* **395** (1), 55–58.] Presented 22 October 2003; received 24 October 2003.

Chashechkin, Yu. D., Baidulov, V. G. & Kistovich, A. V. (2006) [Basic properties of free stratified flows](#). *J. Engng Maths* **55** (1–4), 313–338. Received 11 March 2004; accepted 14 February 2006.

Emission of linear monochromatic waves

1st series: linear inviscid two-dimensional emission by a horizontal cylinder

Makarov, S. A., Neklyudov, V. I. & Chashechkin, Yu. D. (1990) Spatial structure of two-dimensional monochromatic internal-wave beams in an exponentially stratified liquid. *Izv. Atmos. Ocean. Phys.* **26** (7), 548–554. [Transl. from *Izv. Akad. Nauk SSSR Fiz. Atmos. Okeana* **26** (7), 744–755.] Received 7 March 1989; revised 6 June 1989.

2nd series: linear viscous two-dimensional emission by an inclined plate

Chashechkin, Yu. D. & Kistovich, Yu. V. (1997) [Generation of monochromatic internal waves: an exact solution and the force-source model](#). *Phys. Dokl.* **42** (7), 377–380. [Transl. from *Dokl. Ross. Akad. Nauk* **355** (1), 54–57.] Presented 12 March 1997; received 19 March 1997.

Chashechkin, Yu. D. (2001) Geophysical turbulence: a theory and laboratory experiments. In *Turbulent Mixing in Geophysical Flows* (ed. P. F. Linden & J. M. Redondo), pp. 85–106. CIMNE. Presented 20–22 March 1997.

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Il'inykh, Yu. S., Kistovich, Yu. V. & Chashechkin, Yu. D. (1999) [Comparison of an exact solution to a certain problem of periodic internal wave generation with experiment](#). *Izv. Atmos. Ocean. Phys.* **35** (5), 589–594. [Transl. from *Izv. Ross. Akad. Nauk Fiz. Atmos. Okeana* **35** (5), 649–655.] Received 29 June 1998; revised 12 January 1999.

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Kistovich, Yu. V. & Chashechkin, Yu. D. (2001) [Generation of periodic internal waves by an oscillating strip of finite width](#). *Dokl. Phys.* **46** (9), 667–671. [Transl. from *Dokl. Ross. Akad. Nauk* **380** (1), 51–55.] Presented 26 March 2001; received 27 March 2001.

2nd series: linear viscous axisymmetric emission by a vertical cylinder

Il'inykh, Yu. S., Smirnov, S. A. & Chashechkin, Yu. D. (1999) Excitation of harmonic internal waves in a viscous continuously stratified liquid. *Fluid Dyn.* **34** (6), 890–895. [Transl. from *Izv. Ross. Akad. Nauk Mekh. Zhidk. Gaza* (6), 141–148.] Received 25 December 1997.

Kistovich, Yu. V. & Chashechkin, Yu. D. (2001) [Some exactly solvable problems of the radiation of three-dimensional periodic internal waves](#). *J. Appl. Mech. Tech. Phys.* **42** (2), 228–236. [Transl. from *Prikl. Mekh. Tekh. Fiz.* **42** (2), 52–61.] Received 5 September 2000.

Chashechkin, Yu. D. & Kistovich, A. V. (2003) [Calculation of the structure of periodic flows in a continuously stratified fluid with allowance for diffusion](#). *Dokl. Phys.* **48** (12), 710–714. [Transl. from *Dokl. Ross. Akad. Nauk* **393** (6), 776–780.] Presented 11 June 2003; received 18 June 2003.

2nd series: synthesis

Chashechkin, Yu. D., Kistovich, Yu. V. & Smirnov, S. A. (2001) [Linear generation theory of 2D and 3D periodic internal waves in a viscous stratified fluid](#). *Environmetrics* **12** (1), 57–80. Received 26 March 1998; revised 19 November 1998.

3rd series: nonlinear viscous axisymmetric emission by a horizontal disk

Kistovich, Yu. V. & Chashechkin, Yu. D. (1999) [Nonlinear generation of periodic internal waves by a boundary-layer flow around a rotating axially symmetric body](#). *Dokl. Phys.* **44** (8), 573–576. [Transl. from *Dokl. Ross. Akad. Nauk* **367** (5), 636–639.] Presented 26 April 1999; received 27 April 1999.

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Il'inykh, Yu. S. & Chashechkin, Yu. D. (2004) [Generation of periodic motions by a disk performing torsional oscillations in a viscous, continuously stratified fluid](#). *Fluid Dyn.* **39** (1), 148–161. [Transl. from *Izv. Ross. Akad. Nauk Mekh. Zhidk. Gaza* (1), 165–180.] Received 24 July 2002.

3rd series: nonlinear viscous two-dimensional emission by a vertical plate

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4th series: linear viscous three-dimensional emission by an inclined plate

Vasil'ev, A. Yu. & Chashechkin, Yu. D. (2003) [The generation of beams of three-dimensional periodic internal waves in an exponentially stratified fluid](#). *J. Appl. Maths Mech.* **67** (3), 397–405. [Transl. from *Prikl. Mat. Mekh.* **67** (3), 442–452.] Received 18 September 2002.

Chashechkin, Yu. D. & Vasil'ev, A. Yu. (2004) [Generation of three-dimensional periodic internal waves by compact sources](#). *Dokl. Phys.* **49** (2), 122–126. [Transl. from *Dokl. Ross. Akad. Nauk* **394** (5), 621–625.] Presented 3 September 2003; received 5 September 2003.

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4th series: linear viscous three-dimensional emission by a vertical cylinder

Davydova, M. A. & Chashechkin, Yu. D. (2004) [The structure of three-dimensional periodic boundary layers in a continuously stratified fluid](#). *J. Appl. Maths Mech.* **68** (3), 391–397. [Transl. from *Prikl. Mat. Mekh.* **68** (3), 437–444.] Received 15 January 2003.

4th series: linear inviscid axisymmetric emission by a horizontal disk

Chashechkin, Yu. D., Vasil'ev, A. Yu. & Bardakov, R. N. (2004) [Fine structure of beams of a three-dimensional periodic internal wave](#). *Dokl. Earth Sci.* **397A** (6), 816–819. [Transl. from *Dokl. Ross. Akad. Nauk* **397** (3), 404–407.] Presented 11 March 2004; received 12 March 2004.

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4th series: linear inviscid axisymmetric emission by a sphere

Chashechkin, Yu. D. & Prikhod'ko, Yu. V. (2007) [Regular and singular flow components for stimulated and free oscillations of a sphere in continuously stratified liquid](#). *Dokl. Phys.* **52** (5), 261–265. [Transl. from *Dokl. Ross. Akad. Nauk* **414** (1), 44–48.] Presented 17 August 2006; received 23 August 2006.

4th series: synthesis

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Nonlinear effects on monochromatic waves

Emission and interaction

Kistovich, A. V. & Chashechkin, Yu. D. (1991) Nonlinear interaction of two-dimensional packets of monochromatic internal waves. *Izv. Atmos. Ocean. Phys.* **27** (12), 946–951. [Transl. from *Izv. Akad. Nauk SSSR Fiz. Atmos. Okeana* **27** (12), 1292–1301.] Received 15 July 1988; revised 15 March 1990.

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Propagation

Kistovich, Yu. V. & Chashechkin, Yu. D. (2001) [Mass transport and the force of a beam of two-dimensional periodic internal waves](#). *J. Appl. Maths Mech.* **65** (2), 237–242. [Transl. from *Prikl. Mat. Mekh.* **65** (2), 244–250.] Received 23 May 2000.

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Free oscillations

Sphere

Levitskii, V. V. & Chashechkin, Yu. D. (1999) Natural oscillations of a neutrally buoyant body in a continuously stratified fluid. *Fluid Dyn.* **34** (5), 641–651. [Transl. from *Izv. Ross. Akad. Nauk Mekh. Zhidk. Gaza* (5), 39–52.] Received 27 October 1997.

Chashechkin, Yu. D. & Levitskii, V. V. (1999) [Hydrodynamics of free oscillations of a sphere on the neutral-buoyancy horizon in continuously stratified fluid](#). *Dokl. Phys.* **44** (1), 48–53. [Transl. from *Dokl. Ross. Akad. Nauk* **364** (1), 52–56.] Presented 16 February 1998; received 17 February 1998.

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Cylinder

Chashechkin, Yu. D. & Prikhod'ko, Yu. V. (2006) [The structure of flows occurring under the free oscillations of a cylinder on the neutral-buoyancy horizon in a continuously stratified fluid](#). *Dokl. Phys.* **51** (4), 215–218. [Transl. from *Dokl. Ross. Akad. Nauk* **407** (5), 622–625.] Presented 12 August 2005; received 17 August 2005.

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