Introduction to the mathematical description of water waves

References and Reading List

The books, research texts and papers are listed alphabetically under the various headings relevant to the material covered in the lectures. Because of the number, a few are starred that you might want to look at first.

Fluids dynamics

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Chemin, J.-Y., *Perfect incompressible fluids*, Clarendon Press, Oxford, 1998.

Childress, S., *An introduction to theoretical fluid mechanics*, American Mathematical Society, Providence (Rhode Island), 2009.

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Courant, R. & Friedrichs, K.O., *Supersonic Flow and Shock Waves*, Interscience, New York, 1967.

Lamb, H., *Hydrodynamics*, Cambridge Univ. Press, Cambridge, 1895 (many reprints).

Landau, L.D. & Lifshitz, *Fluid mechanics*, Pergamon Press, Oxford, 1959.

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Schlichting, H., *Boundary Layer Theory*, McGraw-Hill, New York, 1960.

Temam, R., *Navier-Stokes equations*, North-Holland, Amsterdam, 1984.

Water waves

Bühler, O., *Waves and mean flows*, Cambridge University Press, Cambridge, 2009.

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Dean, R.G. & Dalrymple, R.A., *Water wave mechanics for engineers and scientists*, World Scientific, Singapore,1984.

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Kinsman, B., *Wind waves: their generation and propagation on the ocean surface*, Dover, 2002.

Lannes, D., *The water waves problem*, American Mathematical Society, Providence (Rhode Island), 2013.

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Mei, C.C., *The applied dynamics of ocean surface waves*, World Scientific, Singapore...Hong Kong, 1989.

Okamoto, H. & Shoji, M., *The mathematical theory of permanent progressive water waves*, World Scientific, New Jersey, 2001.

*Stoker, J.J., *Water waves: the mathematical theory with applications*, Interscience, New York, 1957.

and this may be of interest (old, but contains many pictures and descriptions):

Cornish, V., *Waves of the Sea and other Water Waves*, T. Fisher Unwin, London, 1910.

Soliton theory

*Ablowitz, M.J. & Clarkson, P.A., *Solitons, nonlinear evolution equations and inverse scattering*, London mathematical Society Lecture Notes **149**, Cambridge, 1991.

Calogero, F., *Nonlinear evolution equations solvable by the spectral transform*, Pitman, London, 1978.

Calogero, F. & Degasperis, A., *Spectral transform and solitons I*, North-Holland, Amsterdam, 1982.

Dickey, L.A., *Soliton equations and Hamiltonian systems*, World Scientific, Singapore, 1991.

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Solitary wave

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Gerstner's wave

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