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Nota di contenuto	Navier-Stokes Equations -- Energy Preserving Boundary Condition -- Weakly Singular Domain -- Maximal Lp-Regularity.
Sommario/riassunto	This thesis is devoted to the study of the basic equations of fluid dynamics. First Matthias Köhne focuses on the derivation of a class of boundary conditions, which is based on energy estimates, and, thus, leads to physically relevant conditions. The derived class thereby contains many prominent artificial boundary conditions, which have proved to be suitable for direct numerical simulations involving artificial boundaries. The second part is devoted to the development of a complete Lp-theory for the resulting initial boundary value problems in bounded smooth domains, i.e. the Navier-Stokes equations complemented by one of the derived energy preserving boundary conditions. Finally, the third part of this thesis focuses on the corresponding theory for bounded, non-smooth domains, where the boundary of the domain is allowed to contain a finite number of edges, provided the smooth components of the boundary that meet at such an edge are locally orthogonal. Contents · Navier-Stokes Equations · Energy Preserving Boundary Condition · Weakly Singular Domain · Maximal Lp-Regularity Target Groups · Scientists, lecturers and graduate students in the fields of mathematical fluid dynamics and partial differential equations as well as experts in applied analysis. The author Matthias Köhne earned a doctorate of Mathematics

under the supervision of Prof. Dr. Dieter Bothe at the Department of Mathematics at TU Darmstadt, where his research was supported by the cluster of excellence ''Center of Smart Interfaces'' and the international research training group ''Mathematical Fluid Dynamics''.