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Dissertation title: Critical Evaluation and Thermodynamic Modeling of Phase Equilibria in Multicomponent Oxide Systems



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- Thermodynamics of Nitrogen in Fe-Mn-Ai-Si-C Alloy Melts
- Development of a thermodynamic database for mold flux and application to the continuous casting process
- Critical Evaluation and Thermodynamic Optimization of the CaO-P205 System





## New thermodynamic database for the design of high alloyed steel

The CALPHAD (CALculation of PHAse Diagram) type thermodynamic database has been widely used in the development and production of steels. In particular, the solidification, phase transformation, and precipitations of conventional steels have been readily calculated using the CALPHAD database. However, it has been reported that the current CALPHAD thermodynamic database is less accurate for the applications to new high alloyed advanced high strength steels (AHSS). In this seminar, the process to develop the CALPHAD thermodynamic database will be introduced and new steel database under development will be discussed. The application examples of the new database for high alloy steels will be presented.