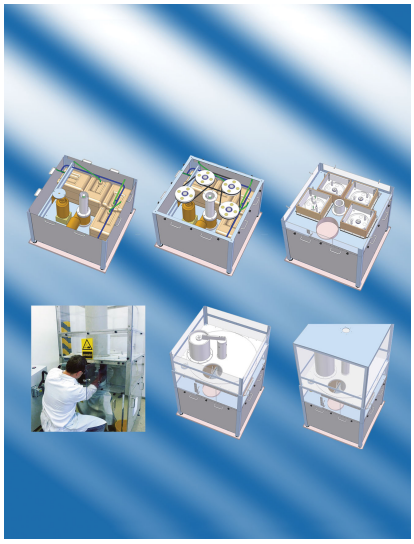

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Cover Photo:

The images show the way of the construction of a laboratory-scale descaling simulator device from the design phase to the implementation and operation. The acid pickling experiments are reported by L. Péter and co-workers on page 704.

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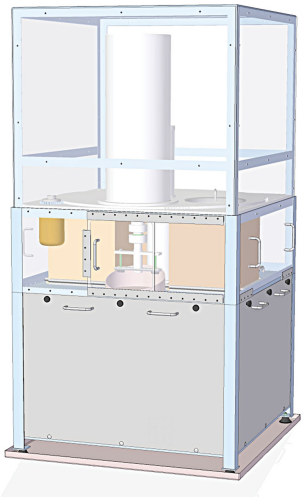
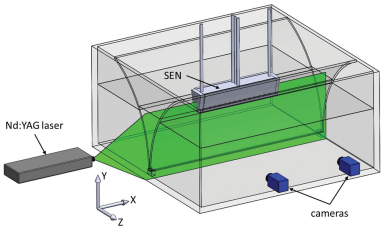


A laboratory-scale workstation has been constructed to study the acid pickling of steel sheets under conditions that are analogous to the production line. The weight loss due to the scale removal as well as the overpickling rate has been measured for various steel grades. The role of various process parameters like immersion time and pulling rate has been studied.



The visualization of the flow inside the pool of a twin roll strip caster is important for the process. In this study, the flow is systematically investigated for different volume flow distributions in a full scale water model. Therefore the particle image velocimetry method and video analysis are used to determine the main flow patterns.

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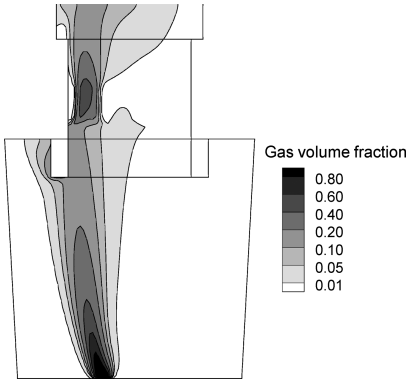
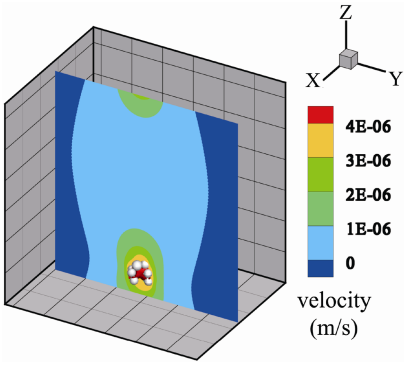
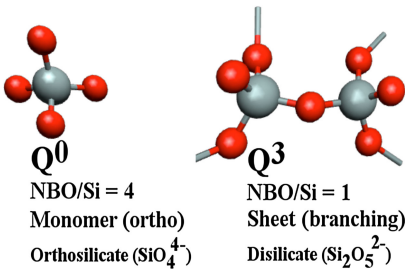


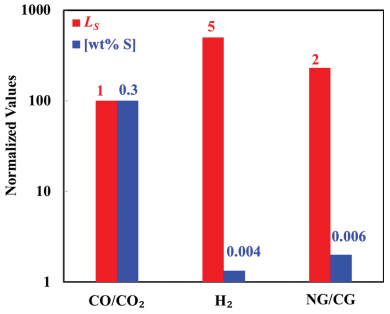
Flow field and mixing phenomenon in single snorkel degasser with ladle bottom blowing has been investigated by numerical method. The results show that the flow field inside the single snorkel vacuum degasser can be optimized in order to achieve higher recirculation rates and smaller mixing times, which are important to refining.



A three-dimensional fractal structure model is introduced to quantify the morphology of inclusion clusters, and the floating behavior of different inclusion clusters is simulated directly using lattice Boltzmann method to investigate the effect of morphology on the floating velocity. By introducing the fractal dimension, an equation for the floatation velocity of cluster-shaped inclusions is derived from the simulation results.



Silicate melt structural entities with their *Q*-notation, NBO/Si ratios, and structural units in addition to bridging and non-bridging oxygens are shown. The molten slags equilibrated with $CO/CO_2/H_2/H_2O$ mixtures are analyzed by the FTIR-RAS and Raman techniques. H_2O increases polymerization of the silicates. The results provide new insights into the slag chemistry under H_2O-containing atmospheres.



For the first time, the effect of water vapor on the distribution of sulfur between slag and molten iron is studied for MgO-saturated CaO–FeO–Al_2O_3–SiO_2–MnO (0.2–0.8 wt%)–P_2O_5 (0.1–0.9 wt%) slags in the temperature range 1550–1600 °C under $CO/CO_2/H_2/H_2O$, H_2/H_2O, and CO/CO_2 with $pO_2 = 10^{-10}$–10^{-9} atm. Water in the gas atmosphere is found to increase L_S.

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The precipitation hardening attracts more and more researchers' attentions due to its higher strengthening effect and relatively lower brittle vector. The objective of the present work is to investigate the chemical composition, crystal structure, and lattice parameter of nanometer-sized carbides in a lowcarbon vanadium–titanium-bearing steel and the orientation relationships between precipitates and ferrite matrix using transmission electron microscope.

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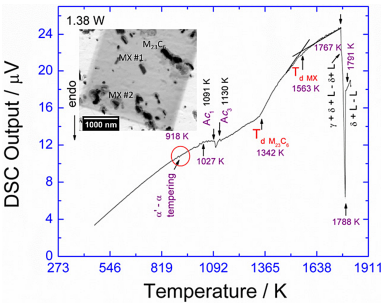

Knowledge based approach to designing power plant steels calls for accurate information on high temperature phase & microstructural stability. In the present study, Dynamic Calorimetry, Electron Microscopy, together with Thermodynamic Simulations, have been carried out to rationalize the observed high temperature phase phase transformation behaviour of W and Ta added Reduced Activation Ferritic Martensitic (RAFM) Steel.