



Kontakt: Milad Eftekhari
Telefon: 0351 260-3873
E-Mail: m.eftekhari@hzdr.de

Kontakt: Gülce Oektem
Telefon: 0351 260-4438
E-Mail: g.oektem@hzdr.de

Competitive bubble-particle attachment from a particle mixture in a model stirred cell

Master theses / Diploma theses / Compulsory Internship

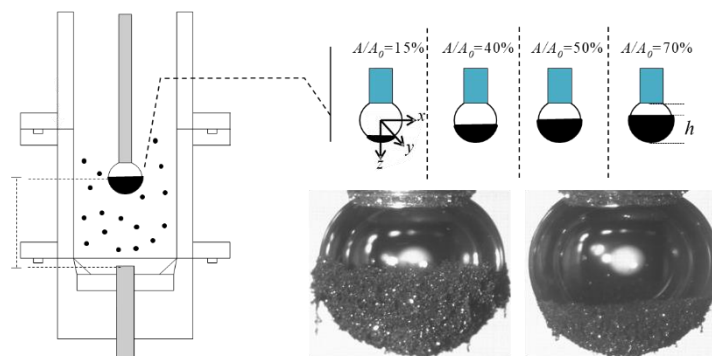
Flotation is a widely used technique worldwide to extract valuable minerals from less valuable ones. To make the process more efficient, several methods have been developed to investigate how various factors affect particle floatability (recovery). Traditionally, this is done by measuring the hydrophobicity of the particles. However, floatability is a much broader concept that encompasses not only hydrophobicity but also other factors such as hydrodynamic conditions. In our research, we introduce a novel approach to quantify particle floatability from a mixture through dynamic bubble surface coverage experiments, considering hydrodynamic effects. Our focus is to understand how the different particles attach to a single bubble from a system containing two (or three) different particle types (chalcopyrite and/or pyrite + quartz). To make these particles hydrophobic, we use common sulfhydryl-type collectors under varying pH conditions.

Our objective is:

- To study the effect of pH and collector concentration on particle floatability.
- To establish a correlation between floatability and flotation recovery.

Experimental methods/techniques:

- Image acquisition and analysis
- Particle size analysis techniques such as laser diffraction and dynamic light scattering



Requirements:

- Study in process engineering, chemical engineering (or comparative field of study)
- Motivation, interest in this field of research, experimental experience
- Optimally: basic knowledge of particle measurement techniques

Conditions:

- duration min. 6 month, start: from Feb/Jan 2024, workplace: HZDR

Postadresse (Briefe)
TU Dresden, 01062 Dresden
Postadresse (Pakete u.ä.)
TU Dresden
Helmholtzstraße 10
01069 Dresden

Besucheradresse
Sekretariat:
Helmholtzstr. 14
Merkel-Bau
EG, Zi. 17

Internet
[https://tu-dresden.de/
ing/maschinenwesen/i
fvu/tpg](https://tu-dresden.de/ing/maschinenwesen/i/fvu/tpg)
www.hzdr.de

