# Articles:

## Effect of Pressure on solidification of metallic materials (2012):

JJ Sobczak, L Drenchev, R Asthana

* 196 MPa pressure increases the heat transfer by factor of 15 (for al-si) compared to atmosphere pressure, because of improved thermal contact between mould and metal.
* Effect of 34 MPa  in casting 413 Al-Si:
  + Alpha-phase volume increased from 21.87% to 46.23 %.
  + Eutectic Si content increased by ~20 wt%.
  + Eutectic temperature increased by 5 degrees C.
* formula for estimating the effect of pressure and ultrasonic vibration on nucleation using the Clausius-Clapeyron equation

## Solidifying pressure and microstructure of AlSi10Cu3 in die sleeve in high pressure casting

X. P. Hu, G. Q. Zhao & W. M. Wang

* nothing

# Effects of Sr and pressure on microstructure, mechanical and wear properties of near eutectic Al–Si piston alloys

Pratheesh et al.

* Sr 0.04% changes silicon morphology from platelets to finer fiber-like structures.
* UTS 155 MPa 🡪 180 MPa
* Hardness 100 HB 🡪 115 HB
* Elongation 2.5% 🡪 2.2% (2% for squeeze cast)
* T6 heat treatment: Si coarsening 🡪 fragmentation 🡪 spheroidisation

# The Influence of Intensification Pressure on the Gate Microstructure of AlSi3MgMn High Pressure Die Castings

Otarawanna et al.

* 2 values of intensification pressure: 13 MPa and 61 MPa
* Higher pressure caused shear banding in the gate.
* Higher pressure 🡪 lower porosity
* Shear banding causes cracks and severe macrosegregations