

SPECIAL MAGNETICS BOOTCAMP

Spontaneous Materials



October 5 and 6, 2021

10:00 AM – 2:00 PM EDT

7:00 AM – 11:00 AM PDT

SPECIAL MAGNETICS BOOTCAMP

Dr. Stan Trout at Spontaneous Materials and Magnet-Physik Academy are pleased to partner, for the first time, in presenting the popular Magnetism Bootcamp in October 2021.

Offered in two parts, the traditional Magnetism Bootcamp training provides basic and advanced knowledge related to hard magnetic materials.

Spontaneous Materials and Magnet-Physik will offer a **Special Bootcamp on 5/6 October 2021.**

SPECIAL MAGNETICS BOOTCAMP

On the first day, Dr. Stan Trout will cover the basics of permanent magnets.

For the second day, participants may choose to either delve into advanced knowledge of permanent magnet materials with Dr. Trout or to acquire basic knowledge concerning soft magnetic materials and testing with our Dr. Juergen Klinkhammer.

The soft magnetic training is an ideal companion to the Bootcamp. Participants will have access to a unique, comprehensive online training opportunity.

SPECIAL MAGNETICS BOOTCAMP

We are pleased to be able to offer this unparalleled, all-in-one magnetics training to our customers.

Register soon!

SPECIAL MAGNETICS BOOTCAMP

Agenda October 5, 2021 – Basic knowledge in hard magnetic materials

- Welcome
- Background
- Things we already knew
 - Poles
 - Living on a magnet
 - Viewing magnetic fields
- Two simple tests
 - Does it stick to a magnet?
 - Does it remain magnetized?
- Magnetic Theory
 - Hysteresis
 - Three materials
 - Three vectors
 - Units and Conversions
- Electromagnetism
 - Field from a current
 - Wires & Coils
- Ferromagnetism
 - Spin
 - Exchange Anisotropy
 - Curie temperature
- Permanent magnets
 - Processing
 - Thermal Effects
 - Corrosion

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Agenda October 6, 2021 – Option 1: Advanced knowledge in hard magnetic materials

- Raw Materials
 - Economics
 - Analysis vs. Recovery
 - Role of Dy and Tb
 - Recycling
- Fields, Forces and Faraday
- Magnetizing
- Self-demagnetization
- Measurements
- Case studies
 - Saturated return path
 - Incorrect magnetization
 - Ferrite conversion
 - Nineteen Mistakes
- What's on the horizon
 - NdFeB with less Dy
 - Exchange magnets
 - Anisotropic powder
 - FeN
- Material Selection Guidelines
- Wrap-up

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Agenda October 6, 2021 – Option 2: Basic knowledge in soft magnetic materials

- Welcome and Some History
- Magnetic Materials Overview
- Magnetic Hysteresis
- Material Selection Guide
- Physics of Magnetic Material Testing
 1. Demagnetization Factor
 2. Open Loop vs. Close Loop Test.
- DC Field Hysteresis Test Methods on
 1. Bars
 2. Rings
 3. Complex Geometries
- AC Field Hysteresis
 1. Standard Test Setups and Samples
 2. Operation modes
- Power Losses
 1. Theoretical Models
 2. Waveform Dependence
- Effect of Machining on Soft Magnetic Materials
- Testing of Complex-Shaped Parts
- Q&A

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 **MAGNET-PHYSIK**
ACADEMY

We look forward to meeting you online!