



## Colorado School of Mines Office for Technology Transfer

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### **A Piezoelectric Sensor Based Smart-Die Structure for Predicting the Onset of Failure During Die Casting Operations**

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**Description:** This invention provides a method for embedding a failure predicting mechanism within the working surface of die casting dies for molten metals. This is done using a piezoelectric thin film sensor that can be use with any coating system for the die. The sensor would detect the onset of failure in the protective layer by the sudden increase in stress level, which always accompanies such failure. The sensor can then facilitate precautionary measure to be adopted.

#### **Potential Areas of Application**

- Manufacturing industry
- Steel industry
- Die cast and coating companies

#### **Main Advantages of this Invention**

- Senses failure before traditional methods
- Can be used with any coating system
- Allows for unmanned monitoring of machining systems in production lines

**Intellectual Property Status:** Patent filed April 12, 2007

**ID number:** US Patent Application Number 12/102,725

**Opportunity:** We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

#### **Contact**

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