

## **ABSTRACT**

### **LASER WELDING METHOD FOR DIAMOND WIRE AND SYSTEM**

A laser welding method for a diamond wire and a system, includes: positioning two ends of a broken wire to make the two ends opposite to each other; cutting and cleaning sections of the two ends; collecting pictures of the two ends, detecting and calculating concentricity of the two ends, controlling the two ends to adjust positions automatically by a visual detection module to make the two ends concentric; aligning a target heating light spot of a laser generation module to a molten pool part formed by the two ends and confined space around the two ends, starting laser heating welding; monitoring a real-time temperature and a real-time crystalline phase of the molten pool part, adjusting heating power of the laser generation module according to the real-time temperature, judging whether a matching degree between a real-time crystalline phase image and a target crystalline phase image is greater than first threshold.

FIG. 1