Polishing Protocol for Zirconium Diboride Based Ceramics to Be Implemented Into Optical Systems

**Title:** Polishing Protocol for Zirconium Diboride Based Ceramics to be Implemented into Optical Systems

**Invention:** This is a method for polishing a particularly hard ceramic that typically requires following a precise protocol. This technology provides an athermal, lightweight and strong ceramic to be used as a more durable option for optical systems.

**Background:** A key component of adaptive optical systems is the deformable mirror, which, through the use of actuators, corrects aberrations present in the wavefront being examined. The search for the perfect material for the mirror has led to materials that present difficulties in polishing.

**Applications:**
- Deformable mirrors
- Biomedical materials
- High temperature semiconductor devices
- Synchrotron optical elements
- Lightweight, high-strength structures
- Adaptive optics
- Hypersonic rocket nose cones

**Advantages:**
- Allows optical systems to be athermal, lightweight, and strong
- Polishes material to high standards without stressing the material

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