

(12) **United States Patent**
Dai et al.

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(54) **COMPOUND MODULATION TRANSFER FUNCTION FOR LASER SURGERY AND OTHER OPTICAL APPLICATIONS**

(52) **U.S. Cl.** 351/205; 351/212; 351/219; 351/246; 351/247

(58) **Field of Classification Search** 351/205, 351/212, 219, 246, 247
See application file for complete search history.

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(63) Continuation of application No. 12/955,270, filed on Nov. 29, 2010, now Pat. No. 8,029,137, which is a continuation of application No. 12/329,743, filed on Dec. 8, 2008, now Pat. No. 7,862,170, which is a continuation of application No. 11/948,475, filed on Nov. 30, 2007, now Pat. No. 7,475,986, which is a continuation of application No. 10/911,400, filed on Aug. 3, 2004, now Pat. No. 7,320,517, which is a continuation-in-part of application No. 10/738,358, filed on Dec. 5, 2003, now Pat. No. 7,293,873.

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(60) Provisional application No. 60/519,885, filed on Nov. 13, 2003, provisional application No. 60/468,387, filed on May 5, 2003, provisional application No. 60/468,303, filed on May 5, 2003, provisional application No. 60/431,634, filed on Dec. 6, 2002.

(57) **ABSTRACT**

Methods, devices, and systems establish an optical surface shape that mitigates or treats a vision condition in a patient. An optical surface shape for a particular patient can be determined using a set of patient parameters for the specific patient by using a compound modulation transfer function (CMTF). The compound modulation transfer function can include a combination of modulation transfer functions (MTF's) at a plurality of distinct frequencies.

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