

# SigFit™ Optomechanical Software

Optomechanical analysis software linking mechanical predictions to optical analysis.

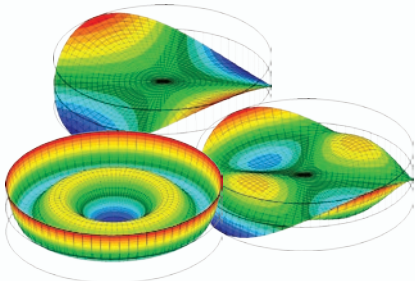
## Comprehensive Interfaces to Market Leading Software

Finite element analysis: NASTRAN, ANSYS Mechanical APDL, ANSYS Workbench, ABAQUS, and others

Optical analysis: CODEV, ZEMAX, and OSLO

Graphical plotting: MSC.Patran, Femap, ANSYS, ABAQUS, and others

**Surface Fitting** — Fits polynomials to deformed surfaces from FEA, test data, or tabular data. ■ Fits Zernike, Annular Zernike, Aspheric, XY, Forbes, Fourier-Legendre, Legendre. ■ Calculates rigid-body motions, polynomial coefficients, residual surface RMS, and Peak-to-Valley. ■ Writes input files of polynomials, tips/tilts and decenters for CODEV, ZEMAX, or OSLO. ■ Performs Monte Carlo analyses of variations due to mounts, loads, actuators.

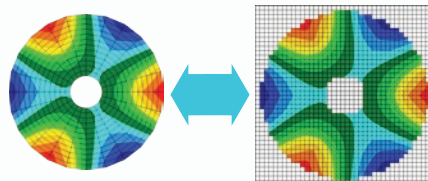


**Harmonic, Random, Transient Response Analysis** — Simulates dynamic response given modal FEA results. ■ Calculates surface bias, tilts, decenters, and residual surface RMS. ■ Outputs transfer functions, PSD response, line-of-sight error, MTF loss due to random line-of-sight error response. ■ Identifies modal contributions to surface and line-of-sight responses to assist in performance diagnosis.

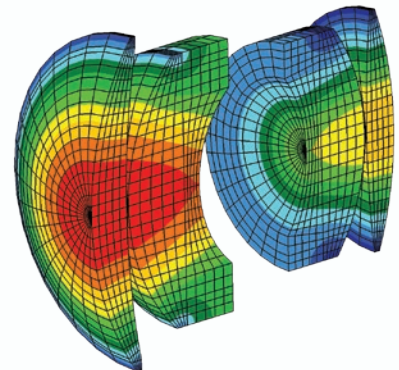
**Optimization I/F** — Supports MSC Nastran Optimization. ■ Writes equations in NASTRAN format for Zernike coefficients and surface RMS. ■ Allows surface RMS or P-V to be constraints or objective in optimization. ■ Useful for designing lightweight mirrors, mounts, and metering structures.

**Adaptive Control** — Solves for actuator forces/strokes to minimize surface RMS. ■ Accepts specification of actuator influence functions in many forms. ■ Actuator stroke limits allowed. ■ Calculates actuator stroke, surface RMS, polynomial coefficients. ■ Optimizes actuator placements using genetic optimization.

**Interpolation** — Interpolates between finite element models and interferogram array files. ■ Reads test interferogram arrays as input to surface fitting and adaptive control. ■ Outputs interferogram array files from FEA results and adaptive control.



**Thermo-Optic & Stress-Optic Effects** — Computes refractive index changes. ■ Calculates OPD due to  $dn/dT$  and  $dn/d\sigma$  effects from FE results. ■ Creates user defined gradient index materials to represent index changes. ■ Calculates stress induced birefringence from FE results.



**Line-of-Sight (LoS) Calculation** — Computes line-of-sight errors due to static and dynamic loads. ■ Calculates and writes line-of-sight coefficients in finite element software format. ■ Calculates MTF response due to jitter in random analysis.

► Call 585.235.6892 for more information or a trial license. Visit [www.sigmadyne.com](http://www.sigmadyne.com) for white papers and more information on SigFit.

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