

# ESRF OPTICAL METROLOGY APPLIED TO BENT OPTICAL SURFACES

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The ESRF mirror metrology laboratory was created 17 years ago. One of its tasks is the mirror-bender assembly calibration and acceptance tests which are carried out with the Long Trace Profiler. We will give a short overview of the long mirror bendable devices delivered from the beginning of the ESRF operation. Then we will focus on the Kirkpatrick-Baez (K-B) systems developed at the ESRF which are used on over half of its beamlines. We will illustrate how optical metrology has become a key point in the development and the production of these devices.

More recently, new requirements to focus X-ray beams down to the nanometre scale have revealed new challenges for the LTP metrology due to the steep slope variation of the optical mirror surface. We will describe the new LTP stitching measurement procedure developed to overcome this difficulty.

Finally, the most recent compact nano-focusing K-B systems (a fixed curvature and the latest ESRF design bendable K-B) will be presented.

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