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# An Integrated Multilateration Approach for Machine Tool Volumetric Verification

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# An integrated multilateration approach for machine tool volumetric verification

Although multilateration based approaches are widely accepted as the most accurate solution for geometric characterisation of medium and large mechanical systems, it is not yet an automatic calibration method. The use of laser trackers or laser tracers either in a sequential mode or in a simultaneous approach leads to industrial limitations such as total time consumption, tight measurand repeatability requirements or thermal drift that prevent an automatic calibration solution. This work presents an integrated multilateration calibration procedure where a tracking interferometer is directly attached to the manufacturing system spindle as a tool instead of being placed on the table. This allows to integrate the measuring sequence and to tackle several fundamental issues affecting the current scenario. This work presents both, a priori simulation work performed during the technology development roadmap, and initial experimental test results on a ZAYER large machine tool where an AT402 LEICA laser tracker has been integrated within the spindle.