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Characterization of a cascaded arc - an extremely bright light source DANIEL SCHRAM, R. ZIJLMANS, J. GOUDSMITS, R. ENGELN, Technische Universiteit Eindhoven — The need for a high intensity light source in spectroscopic applications like cavity enhanced absorption spectroscopy and spectroscopic ellipsometry is obvious, because it potentially leads to more accurate measurements in terms of signal to noise ratio. In this contribution we present an intense and stable broadband light source, a cascaded arc, and a thorough characterization of its light output and modulation possibilities. The light output is spectrally characterized in terms of absolute spectral radiance, which is determined by calibrating the used spectrometers with a tungsten bandlamp, which exhibits a known spectral light output. Furthermore we show the use of an extremely fast, flexible and surprisingly accurate modelling scheme, called: Flexible Approximate Simulation of a Thermal plasma (F.A.S.T.), to investigate the optimal geometry of the arc channel. The agreement between calculated and measured continuum emission is excellent: they show both an appreciable improvement in brightness of the source when the source channel is profiled.

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