

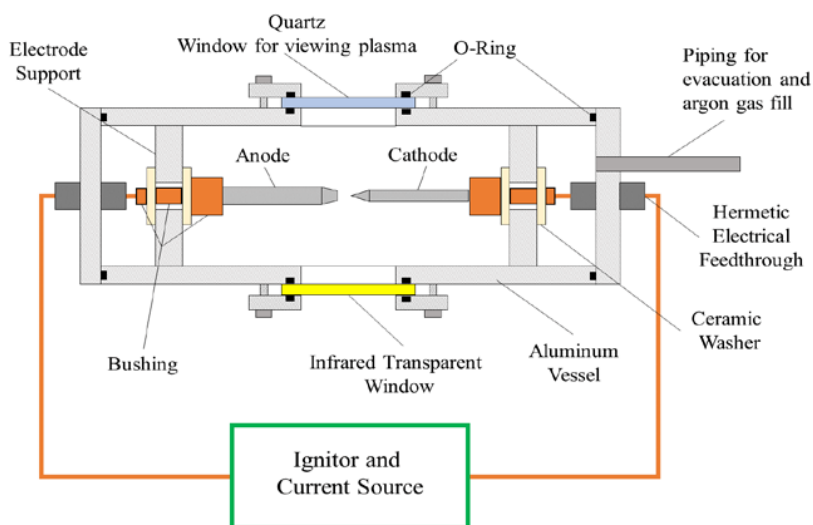
## WM-1708: INFRARED LIGHT GENERATING SYSTEM

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Application: All forms of far-field and near-field mid- and far-infrared spectroscopy, micro-spectroscopy and nano-spectroscopy. Mid- and far-infrared ellipsometry.

Technology Background: Scattering-type scanning near-field optical microscopy (S-SNOM) has enormous potential as a spectroscopy tool in the infrared spectral range because of its ability to probe phonon resonances and carrier dynamics at the nanometer scale. However, its applicability is limited by the lack of practical and affordable table-top light sources that emit intense broadband infrared radiation in the spectral range  $100\text{ cm}^{-1}$  to  $2,500\text{ cm}^{-1}$ .

We have developed an inexpensive, high-temperature, table-top light source that is both ultra-broadband and has much more radiant power in the IR spectral range than conventional, table-top thermal light sources (e.g., the globar). We have implemented this plasma lamp in our near-field optical spectroscopy research and have demonstrated its capability as a broadband infrared light source useful for nano-spectroscopy from the far-infrared to the mid-infrared spectral range.



Intellectual Property: Issued U.S. Patent No. [9,934,927](#)

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