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### Reliable Self-Starting Simmer Circuit for a Marx-Bank Driver

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**Abstract:** A reliable self-starting simmer circuit for use as a Marx-bank driver, in which a stable glow discharge is obtained using the high voltage main power supply instead of an additional simmer power supply, is presented. Highly energetic excitation sources having very short pulse width are needed in powerful dye and excimer lasers. For this reason, multi-stage Marx-bank circuit and LC inversion circuits have been developed. However, these circuits have defects in the interference between the main discharge circuit and the pre-ionization circuit, and an occasional switching failure of the spark gap switch, resulting in an unstable main discharge. The circuit presented seeks to address these issues.

**Key Words:** [Dye laser](#), [Marx-bank circuit](#), [Simmer circuit](#), [Pre-ionization](#), [Flashlamp](#)

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