A new quasi resonant DC link that allows for pulse-width-modulation (PWM) is presented in this thesis. The proposed quasi resonant DC link provides zero-voltage switching (ZVS) condition for the main devices by resonating the DC-link voltage to zero via three auxiliary switches and LC components. The operating principle and mode analysis are given. The simulation was carried out to verify the proposed soft switching technique. A 150W 120VAC single-phase prototype was built. The experimental results show that the soft switching for four main switches can be realized under different load conditions and the peak efficiency can reach 95.6%. The proposed quasi DC link was applied to photovoltaic single-phase DC/AC micro-inverter.

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The public is welcome to attend.