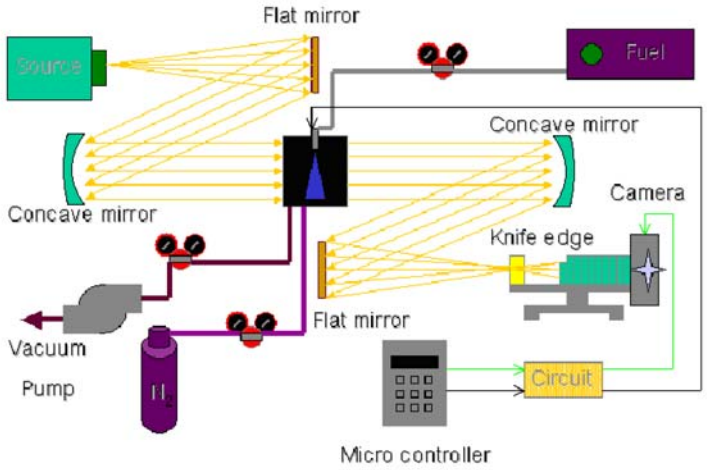

Figure 1. Schlieren set up

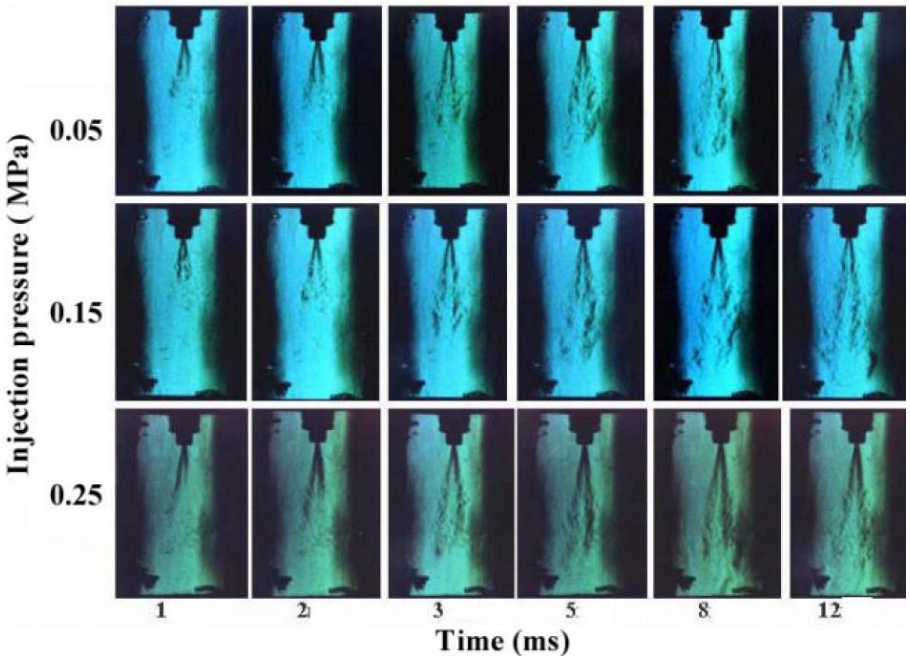

Figure 2. Effect of injection pressure on CNG jet at chamber pressure 0.1 MPa

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VISUALIZATION OF FUEL SPRAY FOR ALTERNATIVE FUEL ENGINE

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The injection of the alternative fuels for IC engine including gas and liquid phase is visualized. CNG, LPG, ethanol and vegetable oils are individually injected into the constant volume chamber. The images of fuel injection are taken by still camera and shclieren set up. The development of spray is observed by synchronizing the injection timing and camera shutter opening with microcomputer. Figure 1 shows the experimental apparatus including schlieren and velocity measurement set up. Figure 2 shows the CNG jet at various injection pressures. The injection pressure was varied at 0.05, 0.15 and 0.25 MPa. The CNG jet penetration is little longer with higher injection pressure. The shape of the CNG jet is not much different at each injection pressure.