

Determination of the Force Constants of Non-linear XY_2 Molecules in the Gas-Phase by the *GF* Matrix Method

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The force constants of the internal coordinates of non-linear XY_2 molecules in the gas-phase were calculated by using the *GF* matrix method. The matrix solution was carried out by means a computer program built relative to the Newton-Raphson method and the calculations were listed in a table. The force constants of some molecules in the liquid- and solid- phase were also found and compared with these ones, and it was seen that the force constants for more condensed phase are lower as in an agreement with having its lower frequency.

Key words: *GF* Matrix Method; Force Constants;
 XY_2 Molecules.