**Editor’s Comment:**

Considering the reviewers comments and authors corrections, we can publish this manuscript.

The reasons are as follows:

1- One reviewer gives comment such as “The manuscript is important to the scientific

community in that it explains the concept of quantum mechanics, molecular spectroscopy

and statistical mechanics.

I like the manuscript because it compares the theoretical and experimental parameters.

It describes the distinction between the flowing discharges and post-discharges in N2

molecules”

2- One reviewer gives comment such as” The manuscript is particularly noteworthy for its

detailed examination of the vibrational temperature evolution in both the discharge and post-

discharge regions. The observation that high vibrational levels become overpopulated in the

post-discharge as low vibrational level populations decrease is a significant finding that

contributes to our understanding of energy redistribution in plasma systems. Furthermore,

the study&#39;s focus on the importance of N2(X,v) ground state levels in N2 flowing afterglows

for re-ionization and excitation of radiative states highlights the critical role of vibrational

excitation in plasma processes.”

3- One reviewer gives comment such as “Accept as it is”

4- Two reviewers give comment such as “Accept after minor revision”

According to the comments, the authors have corrected the manuscript carefully. Therefore, the

manuscript has enough value for publication in the BP International.

**Editor’s Details:**

Prof. Magdy Rabie Soliman Sanad

Professor, National Research Institute of Astronomy and Geophysics, Egypt.