

Referee A

I have had a chance to read the very stimulating paper on C_{60} : Buckminsterfullerene by H. W. Kroto, et al. It is certainly an extremely energetic paper full of ideas and speculations; in the spirit of stimulating scientific debate it certainly is a fun paper. In terms of substantial content I am not sure exactly what it contains other than the ability to emphasize the "production" of the specific carbon cluster size, C_{60} . One needs to be careful about this "production" because the process involved in detecting the species are complex and it is possible to mistake ion production with neutral species concentration. The major difference between the approach to produce these clusters compared to those previously discussed is the higher helium pressure, and this can lead to the formation of much colder species. This could significantly impact the apparent ion production and give the impression of higher neutral concentration. Without more experiments or more discussion of experiments that the authors may have done it is impossible to prove the validity of the claim that C_{60} and possibly C_{70} are "magic number" clusters. There is no doubt that if the results reported are correct and this approach has led to a preferential production of these specific materials, and if these approaches can be scaled to produce "carbosocrene", it would certainly open up exciting new measurement opportunities, indeed new understanding of the chemistry and physics ~~irrelevant~~ to terrestrial as well as astrophysics chemistry.

I think it would be useful if the authors were to refer to some earlier work published in Nature by A. Douglas, 269, 130, 1977 on the carriers of the diffused interstellar absorption. Also, while I cannot give the exact reference, the publication by W. Kratschmer, N. Sörg and D. R. Huffman.

Referee B

Comments on the manuscript by H.W.Kroto et al

Preferred (stable) numbers of atoms (and molecules) are not unusual and indeed are well known. However, the observation that the C_{60} structure becomes so very dominant under certain conditions is very interesting and should be reported. Other than this, the Letter is highly speculative, but much of the speculation is very interesting. However, the statement on P.3. "its stability when formed under the most violent conditions" bothers me. Surely, the C_{60} is hardly preferred from the other C_n molecules in the laser pulse then grows under the non-violent (cool) conditions of the expanding beam? Of course, this does not preclude the possibility that the C_{60} could grow in the cool, dense atmospheres of carbon-rich stars. Finally, dare the authors speculate as to the likely form of the IR spectrum of the C_{60} molecule (compared to say graphite)?! The Letter should be published in Nature since I feel that the subject matter will be of interest to people from several disciplines.