C$^+$ AND C$^-$ IN NEON AND ARGON MATRICES

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Mass-selected C$_{60}$ anions have been deposited in noble gas matrices (Ne,Ar) kept at 6K. The vibronic properties of the species (C$_{60}^+$, C$_{60}^0$, C$_{60}^-$) were determined by NIR and MID-IR absorption spectroscopy. By co-depositing electrons without the addition of electron scavengers or donors to the host matrix, we were able to vary the C$_{60}^+/C_{60}^-$ ratio. By changing the C$_{60}^+/C_{60}^-$ ratio, previously known vibrational data of the C$_{60}^+$ and C$_{60}^-$ species could be confirmed and also extended further. DFT calculations performed on isolated C$_{60}^+$ and C$_{60}^-$ ions support the experimental assignment.