

LABORATORY DETECTION OF TWELVE CARBON-SULFUR CHAINS

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Twelve sulfur-containing carbon chains have recently been detected and spectroscopically characterized in our laboratory by Fourier transform microwave spectroscopy. These include: the singlet chains C_7S and C_9S ; the triplet chains C_6S and C_8S ; the free radicals HC_5S , HC_6S , HC_7S , and HC_8S ; and the asymmetric tops H_2C_4S , H_2C_5S , H_2C_6S , and H_2C_7S . In addition, all three fine structure ladders of triplet C_4S have now been observed, and the two fine-structure constants γ and λ determined to high accuracy. An experimental structure of C_5S has also been derived on the basis of the singly-substituted isotopic species which were observed in natural abundance. A summary of these and other recent results will be presented.