

Fig 4 Countercharges to the 'conventional' S4 are spaced at varied intervals on a spiral of radius 1.4 nm. The interval '1' refers to the 60° , 0.45 nm spacing of S4 charges. Smaller intervals have both the angular and axial spacing reduced by a factor. The scan path follows the spirals of charges. Energy is given here with respect to the energy at the center position of the S4. This is the 'energy profile' relevant for S4 motion. The results of all following figures are based on the 'conventional' S4 with three countercharges at intervals reduced by 0.67.