While the plant nucleus shows great structural similarity to those of other organisms, progress to characterise the plant nuclear envelope (NE) proteome demonstrates remarkable differences. Like animal cells (but unlike yeast and some other fungi), plant cells undergo an open cell division, with the NE breaking down and reforming. Nuclear positioning also appears to be important in plants; for instance rapid migration of the nucleus occurs in root hairs and the nucleus is accurately positioned in unequal cell divisions. The talk will provide a comparative introduction to the plant NE and its proteome, together with consideration of current understanding of the events in NE breakdown and reformation. Our recent exploration of the plant NE has revealed the presence of key proteins that in other kingdoms are integral to nuclear mobility, positioning and signalling. These SUN-domain proteins in animal and fungal cells are crucial components of bridging structures known as the LInker of Nucleoskeleton and Cytoskeleton (LINC) complex, essential for various cellular and nuclear processes, including duplication and anchorage of centrosomes and SPB to the NE, chromosome decondensation, telomere anchorage and the formation of the meiotic chromosome bouquet. Their presence in plants and characterisation of their properties provides the first evidence for such a bridging structure in plants. Information on the targeting and interactions of these proteins central to understanding fundamental processes in nuclear positioning and replication will be presented.