Representation theory and mirror symmetry

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I will discuss the mirror dual to the moduli space of flat G-connections on a topological surface S with punctures, and argue that it is the Landau-Ginzburg model on the moduli space A(G^L, S) of (twisted, decorated unipotent) flat G^L-connections defined by a superpotential W which I will define.

Evidence comes from two sources:

a) Parametrisations of canonical bases in representation theory, both known before and new.
b) The work of A. Givental and other people on equivariant quantum cohomology of flag varieties

Both a) and b) follow naturally from, and in fact linked in, our general set-up.

This is a joint work with Linhui Shen