N = 2 supersymmetric gauge theories and topological recursion

I will explain how Whittaker vectors for principal W-algebras can be computed by topological recursion, using the formalism of Airy structures. As a result, we can access the Nekrasov partition function of N = 2 pure gauge theory on S^4 in general Omega-background. This is a joint work with Vincent Bouchard, Nitin Kumar Chidambaram and Thomas Creutzig.