Invariants of Legendrian Knots from Open Book Decompositions

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Given any contact 3-manifold, Etnyre and Ozbagci defined new invariants of the contact structures in terms of open book decompositions supporting the contact structure. One of the invariants is the support genus of the contact structure which is defined as the minimal genus of a page of an open book that supports the contact structure. In a similar fashion, we define the support genus sg(L) of a Legendrian knot L in a contact manifold M as the minimal genus of a page of an open book of M supporting the contact structure such that L sits on a page and the framing given by the contact structure and by the page agree. In this talk, we will discuss support genus of Legendrian knots in contact 3-manifolds. We will show any null-homologous loose knot has support genus zero. To prove this, we observe an interesting topological property of knots and links on the way. We observe any topological knot or link in any 3-manifold sits on a planar page (genus zero page) of an open book.