Light 3-stars in embedded graphs

K. Čekanová, M. Maceková, R. Soták, Z. Šárošiová

Pavol Jozef Šafárik University, Košice, Slovakia.

For integers $k \geq 1$ and $1 \leq t \leq 3$, let $g(k, t)$ be the minimum integer such that every graph with girth at least $g(k, t)$, minimum degree at least 2 and no $(k + 1)$-path consisting of vertices of degree 2, has a 3-vertex with at least $t$ neighbors of degree 2. For the class of plane graphs there are many results concerning existence of a 3-vertex with specified number of 2-neighbors. Recently, Borodin and Ivanova established the value of $g(k, t)$ for all combinations of $k$ and $t$ (where $k \geq 1$ and $t \in \{1, 2, 3\}$). In the talk we present how the situation changes for the class of graphs embedded on a surface(s) with non-positive Euler characteristic.