Abstract:

We explore here some consequences of the triviality of the monodromy group, for a class of surfaces of which the mixed Hodge structure is pure, we extend results of Miyanishi and Sugie, Dimca, Zaidenberg and Kaliman.

Here we prove the following assertions for a map. Let X be a smooth surface with $H^2(X)$ and $H^3(X)$ have pure Hodge structure and $f : X\to C$, is a morphism with C affine, the we prove:

(i) Monodromy of f is trivial then Monodromy of $\bar f$ is trivial and f is simple.

(ii) The monodromy of f is detremined by the monodromy of a simple loop at infinity.

(iii) The number of reducible fibres of f is bounded above by $\delta -1 +$ $b_2(X)$

(iv) If the monodromy group is trivial and all fibres are reduced and irreducible then f is a locally trivial fibration

(v) If the monodromy group is trivial and all fibres are irreducible and at least one fibre is non reduced, then the general fible of f is $\bC$ or $\bC^*$ or an elliptic curve where $\bC$ denote the complex plane.