

## Automorphism Group of the Local Fusion Graph of a Finite Group

*F. Koorepazan-Moftakhar*

*Department of Pure Mathematics, University of Kashan, Kashan, Iran*  
f.k.moftakhar@gmail.com

*A. R. Ashrafi*

*Department of Pure Mathematics, University of Kashan, Kashan, Iran*  
ashrafi@kashanu.ac.ir

Given a finite group  $G$  and a conjugacy class  $X$  of involutions in  $G$ , the local fusion graph  $F(G, X)$  has vertex set  $X$  and two distinct involutions in  $X$  are joined by an edge if their product has odd order. The aim of this paper is to study the automorphism group of the local fusion graphs of dihedral, semi-dihedral, dicyclic, the group  $U_{2mn} \cong Z_m \rtimes_{-1} Z_{2n}$  and  $V_{8n} = \langle a, b \mid a^{2n} = b^4 = e, aba = b^{-1}, ab^{-1}a = b \rangle$ . Some open questions are also presented.

### References

- [1] J. Ballantyne, On local fusion graphs of finite Coxeter groups. *J. Group Theory* **16(4)** (2013) 595-617.
- [2] J. Ballantyne, P. Rowley, Local fusion graphs and sporadic simple groups. *Electron. J. Combin.* **22(3)** (2015) paper 3.18, 13 pp.
- [3] J. Ballantyne, N. Greer, P. Rowley, Local fusion graphs for symmetric groups. *J. Group Theory* **16(1)** (2013) 35-49.