

**ON THE LOWER NEAR FRATTINI SUBGROUPS OF  
AMALGAMATED FREE PRODUCTS OF GROUPS I**

Mohammad K. Azarian

University of Evansville

1. **Introduction.** In this paper, we briefly reintroduce the Frattini subgroup  $\Phi(G)$ , the lower near Frattini subgroup  $\lambda(G)$ , the upper near Frattini subgroup  $\mu(G)$ , the near Frattini subgroup  $\psi(G)$ , of a group  $G$ , as well as the amalgamated free products of groups. Also, we prove a generalization of a lemma by C. Y. Tang, and its exact analog for the lower near Frattini subgroups. Finally, we propose two questions for readers.

2. **Notation and Definitions.** Our notation will be standard.

Definition 1. An element  $g$  of a group  $G$  is a *nongenerator* of  $G$  if for every subset  $S$  of  $G$  such that  $\langle S, g \rangle = G$ , then  $\langle S \rangle = G$ .

Definition 2. The set of all nongenerators of a group  $G$  forms a characteristic subgroup called the *Frattini subgroup* of  $G$ , denoted