Let $G$ be a finite group and $V(ZG)$ the normalized units in the integral group ring of $G$, i.e. the units whose coefficients sum up to 1. The main open problem concerning torsion units in $V(ZG)$ is the so called Zassenhaus Conjecture:

For any torsion unit $u$ in $V(ZG)$ there exists an unit in the rational group algebra of $G$ conjugating $u$ onto an element of $G$.

At a conference dedicated to the 65th birthday of D. S. Passman W. Kimmerle formulated a much weaker version of the Zassenhaus Conjecture, the so called Prime Graph Question:

If $p$ and $q$ are different primes and $V(ZG)$ contains an element of order $p \cdot q$, does $G$ also contain an element of order $p \cdot q$?

We will present recent results concerning these questions for non-solvable groups, in particular simple and almost simple groups. Moreover a new method to attack these questions will be presented which involves integral and modular representation theory. (Received July 27, 2015)