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Kinetic and graph-theoretic approaches to model plasmas in liquids[1] TOMOYUKI MURAKAMI, Seikei University, THOMAS J MORGAN, LUTZ HUWEL, Wesleyan University, WILLIAM G GRAHAM, Queens University Belfast — Plasma interaction with gas-liquid interfaces is be-coming increasingly important in biological applications. The numerical and theoretical works to be presented here focus on general plasma initiated chemistry in gas-liquid interfaces. Two different approaches, a kinetic theory and a graph theory are used to model the complex chemistry. To describe the plasma-dynamics in the water vapor layer, a time-dependent 1-D numerical simulation combined with the detailed chemical kinetic model has been developed. Furthermore, the chemical reactions are analyzed using graph theory. Since the chemistry is complicated enough for the formation of web-like networks, we can identify which species play central roles to trigger subsequent reactions.

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