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Joanna A Bieri*, 503 S Center St, Redlands, CA 92373. *Characteristics of Non-symmetric Edge Flames in Narrow Channels.*

Two streams, one containing fuel and the other oxidizer, are flowing into a narrow channel where they mix and support an edge flame at some distance downstream. Our analysis is based on a model that assumes a constant-density flow. Both steady and time dependent solutions are found numerically. When the mixture strength is not equal to one, the flame is non-symmetric, the premixed edge is located away from the center of the channel, and the diffusion flame is curved along the stoichiometric surface. In some cases the flame is located very close to the channel wall and the trailing diffusion flame curves toward the wall. This could act as a possible source of heating for extinction re-ignition patterns seen in experiment. We consider the effects of underlying flow rates and heat losses to the channel walls. (Received September 21, 2011)