

Name: Veronica Loomis**Two-Page Annotated Bibliography Template****A. Summarize**

Reference Document Examined:	Schulte, G., "Fuel Regression and Flame Stabilization Studies of Solid-Fuel Ramjets," <i>AIAA Journal of Propulsion and Power</i> , VOL. 2, NO. 4, July-August, 1986.
Reviewer:	Veronica Loomis
Source of Document:	Canvas
Date of Review:	March 8, 2023
Electronic File Name:	1986_Schulte_JPP_2_4.pdf

Summary:

This paper analyzes fuel regression and flame stabilization in solid fuel ramjets. This was tested by varying flight speed, altitude, chamber pressure, air mass flux, and inlet temperature over wide ranges. The aim was to minimize the ratios of the fuel port to nozzle throat area and the fuel port to injector area.

B. Assess:**Important Facts from Document:**

1. To be considered as a realistic alternative system for propulsion, a SFRJ must operate over the expected operating envelope of Mach numbers and altitudes.
2. The point of transition from recirculation zone to boundary layer redevelopment is not always obvious on fuel surface.
3. Flame holding limits are not sensitive to fuel changes.
4. As port diameter of solid fuel grain increases, average regression rate decreases because of diminished heat transfer to wall.
5. Flame holding limits play an important role in ramjet motor design.

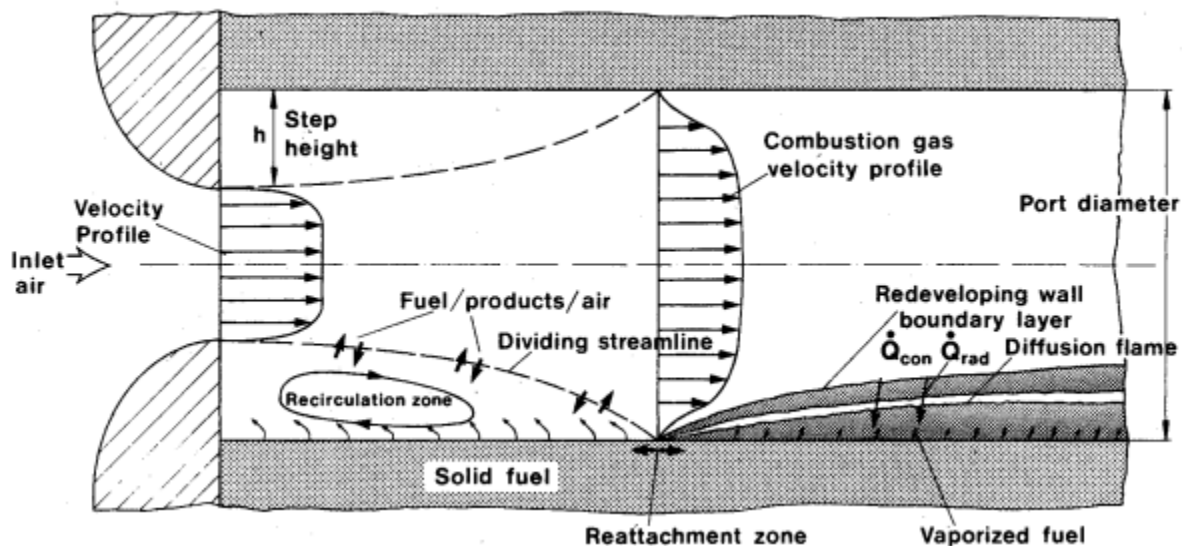
Key Figure from Document:

Figure 1: Schematic illustration of SFRJ dump combustor flow field.

Important Relationships among Parameters Described in the Paper:

1. The rate of solid fuel decomposition depends mainly on the air inlet temp, combustion pressure, and air mass flux.

2. As port diameter increases, regression rate decreases if all other parameters stay constant.

Important Conclusion(s):

1. You can improve motor performance by increasing fuel loading and decreasing pressure losses.
2. Flame holding limits play an important role in ramjet motor design.

C. Reflect

This source does not seem helpful to my current situation. However, it is good to learn more about different types of propulsion systems and their benefits and disadvantages as well as how they are tested.