

# A mass supercritical and Sobolev critical fractional Schrödinger system

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## Abstract

We study the following coupled fractional Schrödinger system:  $\begin{cases} -\Delta u = \lambda_1 u + \mu_1 |u|^{p-2} u + \beta r_1 |u|^{r_1-2} u |v|^{r_2}, \\ -\Delta v = \lambda_2 v + \mu_2 |v|^{q-2} v + \beta r_2 |u|^{r_1} |v|^{r_2-2} v, \end{cases}$  with prescribed mass  $\int_{\mathbb{R}^N} u^2 = a$  and  $\int_{\mathbb{R}^N} v^2 = b$ . Here,  $a, b > 0$  are prescribed,  $N > 2s$ ,  $s > \frac{1}{2}$ ,  $2 + \frac{4s}{N} < p, q < 2 + \frac{4s}{N}$  sufficiently large, a mountain pass-type normalized solution exists provided  $2 \leq N \leq 4s$  and  $2 + \frac{4s}{N} < p, q < 2 + \frac{4s}{N}$

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