

Sternin, B. Yu.; Shatalov, V. E.**On a class of nonlocal elliptic problems.** (English. Russian original) Zbl 0798.58074

Russ. Acad. Sci., Dokl., Math. 45, No. 2, 317-321 (1992); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk 323, No. 2, 245-249 (1992).

The authors define a class of nonlocal elliptic problems, motivated by several examples, consider sets $\mathbb{A}(m, l, r)$ of operators of the form $\mathcal{A} = \widehat{A} + \widehat{\phi}_{11} + \widehat{\phi}_{12} + \widehat{\phi}_{21} + \widehat{\phi}_{22}$, \widehat{A} a ψ DO of order r and the $\widehat{\phi}_{ij}$ certain Fourier integral operators. An element $\mathcal{A} \in \mathbb{A}(m, l, r)$ is said to be elliptic if \widehat{A} and $1 + \widehat{A}^{-1} \circ \widehat{\phi}_{11} + \widehat{A}^{-1} \circ \widehat{\phi}_{12} + \widehat{A}^{-1} \circ \widehat{\phi}_{21} + \widehat{A}^{-1} \circ \widehat{\phi}_{22}$ is elliptic. The authors assert that under certain additional conditions an elliptic operator is Fredholm. Proofs are not given but several examples.

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MSC:

- 58J40 Pseudodifferential and Fourier integral operators on manifolds
- 58J05 Elliptic equations on manifolds, general theory
- 35J45 Systems of elliptic equations, general (MSC2000)

Keywords:

pseudodifferential; Fourier integral; elliptic Fredholm operators