MR850499 (87j:35003) 35-02 (35L99 58G15 58G17)

Duff, G. F. D. (3-TRNT)

Singularities, supports and lacunas.

Advances in microlocal analysis (*Lucca*, 1985), 73–133, *NATO Adv. Sci. Inst. Ser. C Math. Phys. Sci.*, 168, *Reidel*, *Dordrecht*, 1986.

This valuable work is a rich and precise survey of one hundred and four papers about three modern topics. First the author surveys the study of the propagation of singularities for partial and pseudodifferential equations, by the use of Fourier integral operators, wave front sets and microlocal analysis, including the involutive and noninvolutive cases of multiple characteristics. Then the work of C. Fefferman and others on the approximate simultaneous diagonalization of differential operators with variable coefficients is discussed. Finally, for wave equations with variable coefficients, the promising present state of Hadamard's old problem, concerning Huygens' principle of clean cut wave propagation with the support equal to the singular support, is covered.

Reviewed by *Jean Leray*