

**Yamazawa, Hiroshi**

**Newton polyhedrons and a formal Gevrey space of double indices for linear partial differential operators.** (English) [Zbl 1140.35575](#)

Funkc. Ekvacioj, Ser. Int. 41, No. 3, 337-345 (1998).

The author considers linear operators in the variables  $(t, x) \in \mathbb{C}^n \times \mathbb{C}^n$ , of the form  $L = P(t, D_t) + Q(t, x, D_t, D_x)$ , where  $P(t, D_t) = \sum_{|\alpha| \leq m} c_\alpha (tD_t)^\alpha$ , with  $tD_t = (t_1 D_{t_1}, \dots, t_n D_{t_n})$ , and  $Q(t, x, D_t, D_x)$  is an integro-differential operator in the complex domain. The author then defines the Newton polyhedron associated to  $L$ , depending on the order of degeneracy with respect to  $t$  and  $x$  of the coefficients of  $Q$ .

A precise result is expressed concerning the bijectivity of  $L$  in formal Gevrey spaces with double indices  $G^{(s_t, s_x)}$ , with  $s_t$  and  $s_x$  determined in terms of the Newton polyhedron.

Reviewer: [Luigi Rodino \(Torino\)](#) ([MR1676878](#))

**MSC:**

[35S05](#) Pseudodifferential operators as generalizations of partial differential operators

Cited in **6** Documents

[35A20](#) Analyticity in context of PDEs