1052-35-318 **Nhu Thang Nguyen** and **Ingo Witt*** (iwitt@uni-math.gwdg.de), University of Göttingen, Mathematical Institute, Bunsenstr. 3-5, 37073 Göttingen, Germany. *Symbolic parametrix construction for the strictly hyperbolic Cauchy problem.*

The solution u to the strictly hyperbolic homogeneous Cauchy problem $Pu = f \equiv 0$ on X and $\gamma_k u = g_k$ on X_0 for $0 \leq k < \mu$ can be written as $u = \sum_{k=1}^{\mu} E_k g_k$, where each E_k is a sum of Fourier integral operators. Furthermore, it is known that real-principal type operators admit parametrices the kernels of which are one-sided paired Lagrangian distributions. In this talk, by identifying the Lagrangian submanifolds of $T^*(X \times X) \setminus 0$, $T^*(X \times X_0) \setminus 0$, and so on that arise, e.g., in compositions and by identifying the principal symbols on these Lagrangian submanifolds of the operators involved, we put both constructions together and come up with a calculus in which the strictly hyperbolic, but now inhomogeneous Cauchy problem (i.e., the above problem, where $f \not\equiv 0$ is possible) appears as an operator with an invertible principal symbol which allows a parametrix within the calculus. (Received August 31, 2009)