Pseudovariational operators and Yang-Mills Millennium problem

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The second quantization of a complexified Gelfand triple produces the Kree nuclear triple of sesqui-holomorphic functionals on it. Any continuous operator in the Kree triple is a pseudovariational operator, a strong limit of second quantized pseudodifferential operators on $\mathbb{R}^n,\ n \to \infty$.

A thorough analysis of the Noether Yang-Mills energy functional of Cauchy data shows that it is the anti-normal symbol of a selfadjoint elliptic operator in variational derivatives. Such quantum Yang-Mills energy operator has a mass gap at the bottom of its spectrum. This is a solution of the Yang-Mills Millennium problem.

Key words: Second quantizations; infinite-dimensional pseudodifferential operators, symbolic calculus; infinite-dimensional ellipticity; essentially hyperbolic non-linear partial differential equations; Yang-Mills Millennium problem.