**Non-Local Gauge Field Theory: a Model** BOJAN TUNGUZ, APS, UIUC TEAM — Some consequences of Non-Local Gauge (NLG) Invariance are explored with a NLG generalization of QED for which the Unitary group is generated by local functions and differential operators. One of the main features of the model is the existence of spin-two field with gravity-like interaction. Some of the most attractive features of this model are found when we try to quantize it. Most of the obstacles to covariant quantization that are found in General Relativity and other theories of gravity are avoided. This is due to the following features of the model: (1) unique dimensionless perturbation constant, (2) placement of the dimensionful Newton's constant into the gauge-field propagator, (3) polynomial form of the field self-interaction, and (4) the infinite number of local field functions. All these features render this model renormalizable.

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