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## A gauge-independent Higgs mechanism and the implications for quark confinement

*Friday 2 September 2016 17:30 (25 minutes)*

1. Introduction
2. Conventional Higgs mechanism
3. Higgs-Confinement:  $SU(2)$  case
4. Higgs-Confinement:  $SU(3)$  case
5. Conclusion and discussion

### Summary

We propose a gauge-independent description for the Higgs mechanism by which a gauge boson acquires the mass in a manifestly gauge-invariant way without assuming spontaneous breakdown of gauge symmetry signaled by a non-vanishing vacuum expectation value of the scalar field.

This enables us to discuss the confinement-Higgs complementarity from a new perspective.

Moreover, we discuss the implications of this Higgs mechanism for quark confinement for the  $SU(N)$  Yang-Mills theory.

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