

## Horizontal Schubert varieties

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### **Abstract:**

Variations of Hodge structure are constrained by a system of differential equations known as the infinitesimal period relation (IPR), or Griffiths' horizontality condition. The IPR is a homogeneous system defined on a flag manifold  $X = G/P$ . I will characterize the Schubert subvarieties of  $X$  that are solutions of the IPR. I will also discuss the central role that these horizontal Schubert varieties play in our study of variations of Hodge structure: infinitesimally their orbits under the isotropy action 'span' the space of all horizontal subvarieties. This yields a complete description of the infinitesimal variations of Hodge structure. As a corollary we obtain sharp bounds on the maximal dimension of a horizontal subvariety, answering a longstanding question.