

**18.155 LECTURE 22**  
**5 DECEMBER, 2017**

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- (1) Bundle metrics, Riemann metrics, induced metrics, Riemann density.
- (2) Adjoint of a differential operator.
- (3) The Hodge operator  $d + \delta$  and Laplace-Beltrami (or Hodge) operator  $\Delta$
- (4) Self-adjoint elliptic operators on compact manifolds.
- (5) The Hodge decomposition
- (6) deRham cohomology
- (7) Hodge theorem

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