<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker</th>
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<tr>
<td>Tuesday, June 26, 2018</td>
<td>3:00pm-4:00pm</td>
<td><strong>Arithmetic Geometry Learning Seminar</strong> -- Haoyang Guo (UM) <em>Digression: de Jong's conjecture and applications</em></td>
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<td><strong>Differential Equations</strong> -- Jongchon Kim (Institute for Advanced Study, Princeton) <em>Derivative estimates on the averaged Green's function for an elliptic equation with random coefficients</em></td>
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4096 East Hall  
Haoyang Guo (UM)  
*Digression: de Jong's conjecture and applications*

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Differential Equations  
Thursday, June 28, 2018, 4:00pm-5:00pm  
3096 East Hall  
Jongchon Kim (Institute for Advanced Study, Princeton)  
*Derivative estimates on the averaged Green's function for an elliptic equation with random coefficients*

We consider a divergence form elliptic difference operator on the integer lattice, where the coefficient matrix is an i.i.d. perturbation of the identity matrix. Recently, Bourgain introduced novel techniques from harmonic analysis to prove the convergence of the Feshbach-Schur perturbation series related to the averaged Green's function of this model. In this talk, I will present an improved decay estimate regarding the averaged operator, which is conjectured to be nearly optimal. As an application, we obtain (discrete) derivative estimates for the averaged Green's function which go beyond the second derivatives. This is a joint work with Marius Lemm.