

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-92-1153 **Kirsten Maggie Viz*** (vizk1@mail.montclair.edu), Dept. of Mathematical Sciences,
Montclair State University, Montclair, NJ 07043, and **Lora Billings** and **Ira B. Schwartz**.
Disease outbreaks in coupled populations. Preliminary report.

We study the mechanism of disease spread through and between populations. Using ordinary differential equations with time-varying parameters, we have set up a system of SEIR models to reflect the periodicity of measles outbreaks in Cameroon. We group the three northern provinces and the seven southern provinces as two distinct populations and couple them in the model by constant mixing (mass action). We are interested in the sensitivity of the coupling strength and its effects in the asymmetric case. We found that a small contribution of infections from another population can drive new epidemic patterns that would not normally occur. (Received October 04, 2004)