ACTIVITY REPORTING FOR CDC GRANTS PROGRAM
IMU Simons African Fellowship Program

November 3, 2018

Title: Diophantine Equations and Reccurent Sequences.
Grantee: Faye Bernadette
Afilliation: University Gaston Berger(UGB) of Saint Louis, Senegal.
Host Institution: University Purdue NorthWest(PNW), Indiana, USA.
Dates: 14/10/18 to 09/11/18

1 General Feedback

During my visit at PNW, I worked with my host on a research project on Diophantine equations that involve Pell sequences. Our result have been submitted to an international journal for a peer-review. This result will be a joint article with my host and others colleagues.

This have been a wonderful stay and the working environnement was very good for mathematical research. The university provided office for me and we spent many hours working on our project.

I also made useful contacts there. The first week of my stay, my host organized an international conference on Diophantine m-tuples. This was a great conference and I made new connections with experts in my field of interest. During the conference, I also gave a talk on my previous result. This visit contributed to my carreer development since I have learnt new approaches from him. This will certainly help me conduct my researches using a new direction and facilitate my collaborations with others in my field.

We have two more projects in progress, involving reccurrent sequences as Balancing numbers and k-generalized Lucas sequence. Our main tools are linear forms in logarithms of algebraic numbers and a reduction algorithm originaly introduced by Baker and Davenport. We hope to finish those projects in a near future.

As a result of my visit, we have a paper in a preprint form named "On the exponential Diophantine equation $P_n^x + P_{n+1}^x = P_m$". We have annonced it on Arxiv. Here is the link: https://arxiv.org/submit/2456697.