Part B Project Summary

Project Title:	**Project No.**
Development of experiments on radiation and radioactivity and sharing of education materials through a Wiki-style electronic platform 開發有關核輻射及放射性的實驗及使用維基式電子平台共享教材	2011/0158

Composition

(i) Principal investigator (PI): Department of Applied Physics (AP), PolyU
(ii) Collaborators: Lingnan Hang Yee Memorial Secondary School, Po Leung Kuk Wu Chung College, Elegantia College, Ho Dao College and The Chinese Foundation Secondary School
(iii) Consultant: Hong Kong Observatory (HKO)

Long-term goals

(i) Develop experiments on radiation and radioactivity with supplementary documents to assist teaching.
(ii) Promote the use of a Wiki-style electronic- (e-) medium in sharing education materials.
(iii) Promote the awareness of Hong Kong students on radiation and nuclear radiation.

Short-term goals and related objectives

(i) Design and run model experiments/activities on radiation and radioactivity with supplementary documents to support teaching, with topics covering units of radioactivity and radiation dose, detection of radiation using GM counters, radiation safety assessment and precautions, production of a prototype cloud chamber and observations of fundamental phenomena of radioactivity.
(ii) Use a Wiki-style e-platform to deliver the materials covered by Creative Commons (CC) license.
(iii) Organize a visit to HKO radiation monitoring station, training courses and a student seminar.

Targeted beneficiaries

(i) Teachers and students of the collaborating secondary schools (~800).
(ii) All secondary school students taking the unit "Radioactivity and Nuclear Energy" of physics (~70000/year).
(iii) Primary and secondary school students and the general public may also benefit from some of the topics covered by this project via the e-platform (~30000/year).

Implementation plan: 1 September, 2012 to 31 August, 2013 (12 months)

Period	*Milestone*
8 months (1/9/2012 –30/4/2013)	Work with partners to design and run model experiments/activities on radiation and radioactivity with supplementary documents.
4 months (1/5/2013 – 31/8/2013)	Upload electronic materials to an existing e-platform. Perform CC registration for the creations. Organize activities to promote the deliverables.

Deliverables

(i) A series of education packages and instructions with a logical sequence to cover the following:
- An introduction to units on radioactivity and radiation dose.
- Model activities on detection of radiation using a GM counter.
- Model experiments/activities on safety assessment/precautions for handling/storing radioactive sources.
- Fabrication of 5 to 10 sets of dry ice-free diffusion cloud chamber prototypes and observation of ionization tracks; and demonstrative video clips to be uploaded to a Wiki-style e-platform for dissemination.

(ii) Wiki-style e-platform to share the electronic materials derived.
(iii) 2 training courses for teachers on the safety of handling radioactive sources.
(iv) 1 trial run of student experimentation lab within the university for each collaborating school.
(v) 1 visit to HKO radiation monitoring station and 1 student seminar.
(vi) Seminars organized by participating schools within schools.

Expected outcomes

(i) Teachers and students will be able to assess the safety level of a radioactivity experiment, handle radioactive sources safely, fabricate simple dry-ice-free cloud chamber, and design and run radioactivity experiments at their own schools.
(ii) Students will understand the concept of radiation and nuclear radiation.
(iii) More people will use e-platform with Creative Common (CC) license to share education materials.

Budget: Total $198,700 including $178,920 for salary of a Project Coordinator (in university scale), $14,420 for parts and equipment, $5,356 for general expenses.

Evaluation: Number of hit counts to the e-platform; number of teachers and students attended the training courses, experimentation labs, and seminars; feedback from users and public media.