

Status Report

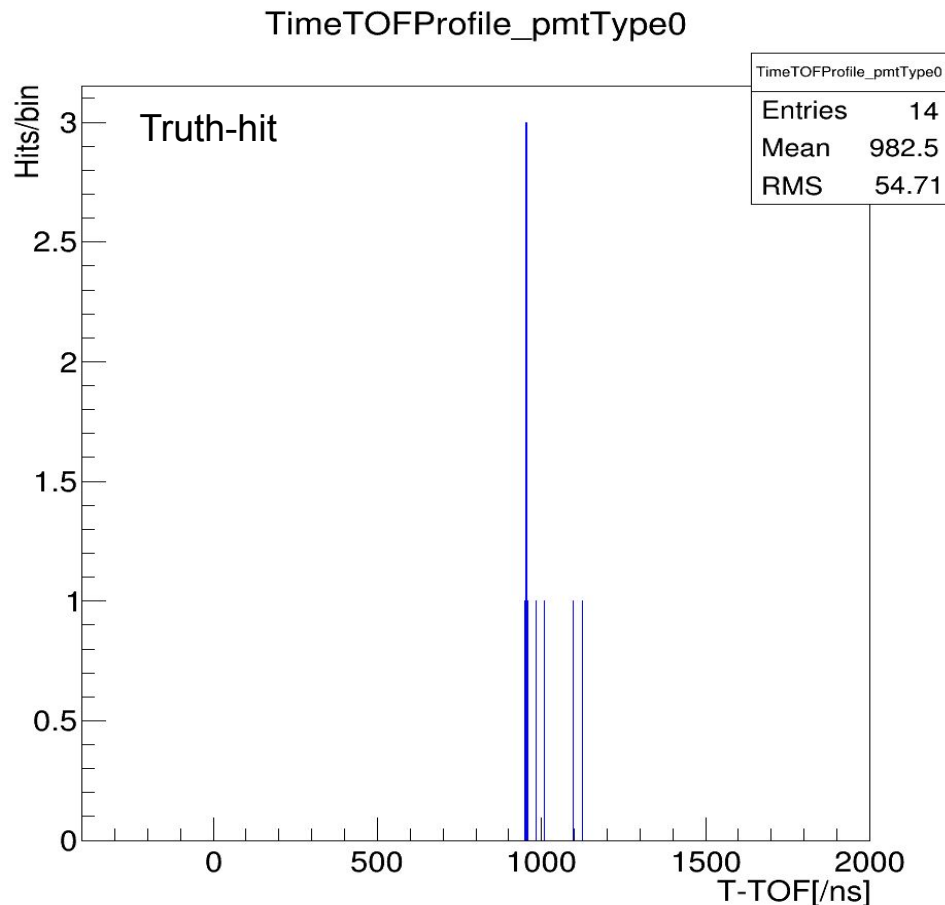
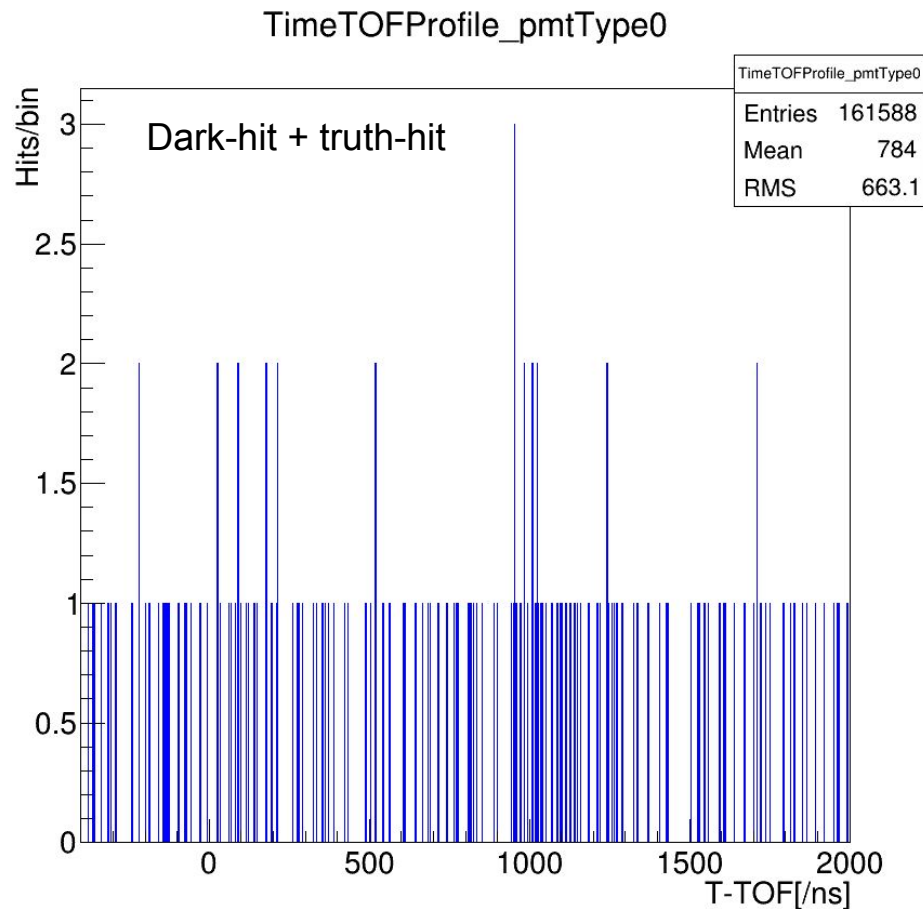
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3 July. 2020

mPMT Japan meeting

Update

- Embedded hit information if it was dark-hit or not into WCSim output
→ Using this, I will analyze the output of my framework



Technical information: how to embedded

- WCSimRootCherenkovDigiHit has PhotonIds in std::vector
 - Having WCDigi's "digi_comp"
- I modified so that
 - photon_unique_id < 0 if dark-hit
 - no change for if not dark-hit
- Check the hit was dark according to "WCPMT::GetParentID(int)"
 - If dark -> -1
(stored in WCAddDarkNoise)
 - Photon -> 0
(? Geant4 parent id, originally)

```
class WCSimRootCherenkovDigiHit : public TObject {
private:
    // See jhfNtuple.h for the meaning of these data members:
    Float_t fQ;
    Float_t fT;
    Int_t fTubeId;
    Int_t fmPMTId;
    Int_t fmPMT_PMTId;
    std::vector<int> fPhotonIds;

public:
    WCSimRootCherenkovDigiHit() {}
    WCSimRootCherenkovDigiHit(Float_t q, Float_t t, Int_t tubeid, std::vector<int> photon_ids);
    WCSimRootCherenkovDigiHit(Float_t q, Float_t t, Int_t tubeid, Int_t mpmtid, Int_t mpmt_pmtid, std::vector<int> photon_ids);

    virtual ~WCSimRootCherenkovDigiHit() {}

    Float_t GetQ() const { return fQ; }
    Float_t GetT() const { return fT; }
    Int_t GetTubeId() const { return fTubeId; }
    Int_t GetmPMTId() const { return fmPMTId; }
    Int_t GetmPMT_PMTId() const { return fmPMT_PMTId; }
    std::vector<int> GetPhotonIds() const { return fPhotonIds; }

    ClassDef(WCSimRootCherenkovDigiHit,3)
};
```

```
(>271 | bool MakeDigit = false;
272 | if(time >= integr_start && time <= upperlimit) {
273 |     peSmeared += pe;
'>274 |     photon_unique_id = parentid == -1? -1 - ip: ip;
275 |     digi_comp.push_back(photon_unique_id);
}>276
277 #ifdef WCSIMWCDIGITIZER_VERBOSE
278 |     if(tube < NPMTS_VERBOSE)
279 |         G4cout<<"INFO: time "<<time<<" digi_id "<<digi_unique_id<<" p_id "<<photon_unique_id<<G4endl;
280 #endif
<mPMTSim/WCSim_hybridPMT/src/WCSimWCDigitizer.cc[FMT=unix][TP=CPP][0274,0001][68%][L=399]
```