

DAFTAR ISI

SURAT PERNYATAAN KEASLIAN SKRIPSI ..	Error! Bookmark not defined.
LEMBAR PERSETUJUAN	Error! Bookmark not defined.
LEMBAR PENGESAHAN	Error! Bookmark not defined.
LEMBAR PERSEMBAHAN	Error! Bookmark not defined.
KATA PENGANTAR.....	Error! Bookmark not defined.
ABSTRAK	Error! Bookmark not defined.
ABSTRACT	Error! Bookmark not defined.
DAFTAR ISI.....	ix
DAFTAR GAMBAR.....	xii
DAFTAR TABEL	xiv
BAB I PENDAHULUAN.....	Error! Bookmark not defined.
1.1 Latar Belakang	Error! Bookmark not defined.
1.2 Rumusan Masalah	Error! Bookmark not defined.
1.3 Batasan Masalah.....	Error! Bookmark not defined.
1.4 Tujuan Penelitian.....	Error! Bookmark not defined.
1.5 Metode Pengumpulan Data	Error! Bookmark not defined.
1.6 Sistematika Penulisan.....	Error! Bookmark not defined.
BAB II TEORI DASAR.....	Error! Bookmark not defined.
2.1 Kelenjar Tiroid	Error! Bookmark not defined.
2.2 Kelainan Kelenjar Tiroid.....	Error! Bookmark not defined.
2.2.1 Hipotiroid	Error! Bookmark not defined.
2.2.2 Hipertiroid.....	Error! Bookmark not defined.
2.3 Interaksi Radiasi dengan Materi.....	Error! Bookmark not defined.
2.3.1 Radiasi Partikel Bermuatan.....	Error! Bookmark not defined.
2.3.2 Interaksi Radiasi Partikel Bermuatan.....	Error! Bookmark not defined.
2.3.3 Radiasi Gelombang Elektromagnetik (Foton)	Error! Bookmark not defined.

2.3.4	Interaksi Radiasi Gelombang Elektromagnetik	Error! Bookmark not defined.
2.4	<i>Radioiodine</i> dalam Radioterapi	Error! Bookmark not defined.
2.5	Terapi Radionuklida pada Tiroid.....	Error! Bookmark not defined.
2.6	Produksi I-123	Error! Bookmark not defined.
2.7	Detektor Sintilasi.....	Error! Bookmark not defined.
2.8	Simulasi menggunakan <i>Monte Carlo N-Particle</i> ..	Error! Bookmark not defined.
2.8.1	Pengertian <i>Monte Carlo</i>	Error! Bookmark not defined.
2.8.2	Proses Simulasi pada MCNP	Error! Bookmark not defined.
2.8.3	Estimasi Kesalahan pada <i>Monte Carlo</i>	Error! Bookmark not defined.
2.8.4	Algoritma <i>Monte Carlo N-Particle</i> ..	Error! Bookmark not defined.
2.8.5	Transportasi Elektron di MCNP.....	Error! Bookmark not defined.
2.8.6	<i>Tally</i>	Error! Bookmark not defined.
2.8.7	Perluasan Energi <i>Gaussian</i>	Error! Bookmark not defined.
2.8.8	Dosis Serap	Error! Bookmark not defined.
2.8.9	<i>Inverse Square Law</i>	Error! Bookmark not defined.
2.8.10	MCNP <i>Visual Editor (vised)</i>	Error! Bookmark not defined.
BAB III METODE PENELITIAN		Error! Bookmark not defined.
3.1	Tempat dan Waktu Penelitian	Error! Bookmark not defined.
3.2	Diagram Alir Penelitian.....	Error! Bookmark not defined.
3.3	Studi Literatur.....	Error! Bookmark not defined.
3.4	Identifikasi Masalah	Error! Bookmark not defined.
3.5	Analisis Kebutuhan	Error! Bookmark not defined.
3.6	Input Data MCNP.....	Error! Bookmark not defined.
3.7	Pengambilan Data.....	Error! Bookmark not defined.
3.7.1	Simulasi Sintilasi NaI.....	Error! Bookmark not defined.
3.7.2	Simulasi <i>Phantom</i> Tubuh.....	Error! Bookmark not defined.
3.7.3	Simulasi Keseluruhan Penelitian.....	Error! Bookmark not defined.
BAB IV HASIL DAN PEMBAHASAN		Error! Bookmark not defined.

4.1	Pendeteksian Dosis Radiasi Pada Kelenjar Tiroid	Error! Bookmark not defined.
4.2	Perluasan Spektrum dari Hasil Simulasi	Error! Bookmark not defined.
BAB V		Error! Bookmark not defined.
PENUTUP		Error! Bookmark not defined.
5.1	Kesimpulan.....	Error! Bookmark not defined.
5.2	Saran.....	Error! Bookmark not defined.
DAFTAR PUSTAKA		Error! Bookmark not defined.
LAMPIRAN		Error! Bookmark not defined.
DAFTAR RIWAYAT HIDUP		Error! Bookmark not defined.



DAFTAR GAMBAR

- Gambar 2. 1** Anatomi Kelenjar Tiroid (Djokomoeljanto, 2009)..... **Error! Bookmark not defined.**
- Gambar 2. 2** Peristiwa sinar α (BATAN, 2017) ...**Error! Bookmark not defined.**
- Gambar 2. 3** Peristiwa Sinar β (BATAN, 2017)...**Error! Bookmark not defined.**
- Gambar 2. 4** Peristiwa Ionisasi (BATAN, 2017) .**Error! Bookmark not defined.**
- Gambar 2. 5** Peristiwa Eksitasi (BATAN, 2017) .**Error! Bookmark not defined.**
- Gambar 2. 6** Peristiwa *Bremsstrahlung* (BATAN, 2017) .. **Error! Bookmark not defined.**
- Gambar 2. 7** Peristiwa Sinar *Gamma* (BATAN, 2017)..... **Error! Bookmark not defined.**
- Gambar 2. 8** Peristiwa Sinar-X (BATAN, 2017) .**Error! Bookmark not defined.**
- Gambar 2. 9** Peristiwa Efek Fotolistrik (Swakarma, 2010) **Error! Bookmark not defined.**
- Gambar 2. 10** Peristiwa Efek *Compton* (Swakarma, 2010) **Error! Bookmark not defined.**
- Gambar 2. 11** Peristiwa Produksi Pasangan (BATAN, 2017)...**Error! Bookmark not defined.**
- Gambar 2. 12** Skema Detektor NaI(Tl) (modifikasi dari Knoll, 1979) **Error! Bookmark not defined.**
- Gambar 2. 13** Prinsip simulasi partikel dalam MCNP (Rasito, 2013) **Error! Bookmark not defined.**
- Gambar 2. 14** Tampilan MCNP *Visual Editor (vised)* **Error! Bookmark not defined.**
- Gambar 3. 1** Diagram Alir Penelitian.....**Error! Bookmark not defined.**
- Gambar 3. 2** Visualisasi Sintilasi Menggunakan *VisedX22S* (Dokumentasi Pribadi).....**Error! Bookmark not defined.**
- Gambar 3. 3** Visualisasi *Phantom* Tubuh 2D Menggunakan**Error! Bookmark not defined.**

Gambar 3. 4 Tampilan *Total Commander* (Dokumentasi Pribadi) **Error! Bookmark not defined.**

Gambar 4. 1 Bentuk geometri dua phantom di lihat dari *MCNP Visual Editor (VisedX22S)*.....**Error! Bookmark not defined.**

Gambar 4. 2 Grafik Pengaruh Jarak Detektor Terhadap Sumber Radiasi.... **Error! Bookmark not defined.**

Gambar 4. 3 Grafik Perbandingan Spektrum Energi dengan Sumber Berbeda**Error! Bookmark not defined.**

Gambar 4. 4 Grafik Perbandingan Spektrum Energi dengan Sumber Berbeda **Error! Bookmark not defined.**

Gambar 4. 5 Distribusi dosis pada kelenjar tiroid di sumbu XZ (kiri) dan sumbu XY (kanan).....**Error! Bookmark not defined.**

Lampiran 1. 1 Grafik Spektrum Energi I-123 Pada NPS 10^5 **Error! Bookmark not defined.**

Lampiran 1. 2 Grafik Spektrum Energi I-123 Pada NPS 10^6 **Error! Bookmark not defined.**

Lampiran 1. 3 Grafik Spektrum Energi I-123 Pada NPS 10^7 **Error! Bookmark not defined.**

Lampiran 2. 1 Grafik Spektrum Energi I-123 Dengan Variasi Bin **Error! Bookmark not defined.**

Lampiran 2. 2 Grafik Spektrum Energi I-123 Variasi Bin**Error! Bookmark not defined.**

Lampiran 2. 3 Grafik Spektrum Energi I-123 Variasi Bin**Error! Bookmark not defined.**

Lampiran 3. 1 Grafik Spektrum Energi I-131 Variasi Bin**Error! Bookmark not defined.**

Lampiran 3. 2 Grafik Spektrum Energi I-131 Variasi Bin**Error! Bookmark not defined.**

Lampiran 3. 3 Grafik Spektrum Energi I-131 Variasi Bin**Error! Bookmark not defined.**

DAFTAR TABEL

Tabel 2. 1 Tingkat Kesalahan Pada MCNP (Goorley, MCC, & LANL, 2007)
.....**Error! Bookmark not defined.**

Tabel 3. 1 Komposisi Material dari Detektor (Talboys, 2016)**Error! Bookmark not defined.**

Tabel 4. 1 Dosis Serap Pada Detektor.....**Error! Bookmark not defined.**

Tabel 4. 2 Dosis Serap Pada Kelenjar Tiroid**Error! Bookmark not defined.**

