May 2020

LabPhysics_IS5_20151012_Seg35.pdf

Setting: physics lab
Participants: IS5 (female, black sweater), S1 (female, brown shirt), S3 (female, colorful scarf)

Xxx IS5: when you ((unclear)),
Xxx you need to give me the (errors right)?
Xxx (.2)
Xxx s1: the ((unclear)) pointing up?
Xxx IS5: yea its a experiment ((unclear)),
Xxx so
xxx this one is a plus,
Xxx so p
Xxx this is the (errors).
Xxx because momentum
Xxx (the errors of this one),
Xxx square of this one,
Xxx plus,
xxx the square of this one,
Xxx ((unclear))
Xxx ((points to the blackboard and S1 looks back))
Xxx S1: ok and that's going to be the momentum?
Xxx IS5: momem- e (error) of the momentum.
Xxx S1: ok so-
Xxx IS5: momentum is the (.) value of these two.
Xxx S1: o ok so you want us to do that one and get the
Xxx answer (for it right here)-
Xxx IS5: yea first first of all you need to ((unclear))
Xxx this is not the standard.
Xxx S2: (do you add those)?
xxx (do you add the square minus) the -
Xxx ((unclear))
Xxx IS5: yes yes exactly.
Xxx S1: wait are you saying we have to write the
uncertainty [here?
Xxx IS5: [yes of course
Xxx S1: (for all of these)?
Xxx IS5: yes
Xxx S1: ok
Xxx IS5: ((she starts solving it on the paper))

Xxx and this section,
Xxx you know what square root bracket means.=
Xxx S1: =mhm
Xxx IS5: uh small or=
Xxx S1: =big
Xxx the small one or the large one?
Xxx IS5: so if a plus two mean A small equal to A
xxx right?
Xxx ((unclear))
Xxx S1: ok
Xxx IS5: m m this one is the value,
Xxx this one ((unclear)) minus ((unclear)),
Xxx the region,
xxx right.
Xxx this is uh after this is ((unclear)),
Xxx I need this to overlap.
Xxx like this is axis right?
Xxx we should directly ((unclear))=
Xxx S1: =ok
Xxx IS5: ((something around regions))
Xxx and we could overlap ((unclear))=
Xxx S1: ((unclear)) overlaps means if it hits each other
xxx and it goes in the same direction?
Xxx IS5: >no no no< overlaps mean these two region.
Xxx this is the p (.2) before,
Xxx this is the p after (region),
Xxx and this X is like-
Xxx P minus P plus P Y.
Xxx this is the P region of the ((unclear))=
Xxx S1: =ok
Xxx IS5: the P is ((unclear)).
Xxx (and this is P 1 minus P prime),
Xxx (this is P 1 plus P prime).
Xxx (so this region might be this region).
Xxx so if this two region have the overlap,
Xxx I mean this section- overlap section,
Xxx so it is conserved.
Xxx P is conserved.-
Xxx is this ((unclear)) is uh
Xxx ((writing it down))
Xxx the P minus-

Xxx this is the region of one-
Xxx so this is ((unclear))
Xxx ((unclear something is conserved?)).
Xxx you have to get the errors before you
3:00
Xxx verify if it is conserved or not.=
Xxx S1: =ok
Xxx ok thank you
Xxx S2: ((unclear))
CLF IS5: no the error is uh
CLF you (can an error)
CLF S2: ((unclear))
CLF IS5: ((unclear: something is small))
CLF ((unclear)) or not
CLF do you understand?
Xxx S1: no
Xxx like not at all
Xxx ((IS5 and S2 collapses from laughing))
Xxx I mean it’s ok we’ll figure it out.
Xxx S2: ((unclear))
Xxx IS5: ok
Xxx S2: wait ok so we-
Xxx IS5: ok so I can give you an example.
Xxx I can give errors of P ((unclear)).
Xxx S2: ((unclear)) so ((points))
Xxx IS5: that’s uh- ((grabs paper and pencil))
xxx an:d,
xxx I will show you.
Xxx this is so-
Xxx the region,
Xxx can you come to this side?
Xxx it’s hard to-
Xxx and the- the- ((unclear))
Xxx so ((unclear)) 9.008=
Xxx S1: =32
Xxx IS5: yes plus or minus
Xxx this is the errors of the momentum before,
Xxx clear?=
Xxx S1: =ok
Xxx IS5: 0 0 0 [1
Xxx S1: [1 7

Xxx =so that's the error?=
Xxx IS5: yes ((unclear: something about momentum))
Xxx S1: so here I'm going to write plus or minus 0.01017
Xxx S2: so they [give it to us some but not all?=
Xxx IS5: [yes ((to S1))
Xxx =uh no before they ((unclear))
Xxx cuz it is uh-
Xxx one of them is at rest.
Xxx so there is no (values that it is zero)=
Xxx S2: =yea-
Xxx IS5: so
CLF S1: so my kinetic energy after the collision-
CLF eh uncertainty- error is zero?
CLF this is zero there?=
CLF IS5: =yea
CLF S1: so it's 0?=
CLF IS5: =no
Xxx S1: oh ok no.
Xxx IS5: eh eh it (will always be sum of to this zero).
Xxx but the (three) one means it is zero
Xxx so plus this one and this one
xxx >but this is zero<-
Xxx so just use this one as momentum.
Xxx S1: (.2) ok
Xxx IS5: this this (represents zero).
Xxx S1: ok so (the 3) represents 0.
Xxx IS5: yea [exactly
Xxx S1: [ok
Xxx IS5: and for this one ((something about squaring))
Xxx so this is uh zero point zero-
xxx ((unclear))
Xxx right?
Xxx S1: so the total momentum after collision
Xxx what they're saying it's the-
Xxx negative .002 square root,=
Xxx IS5: =no no no ((points))-
Xxx S1: oh just add those two together=
Xxx IS5: =yes yea
Xxx S1: ok so that's what we got- what we got-
Xxx the two after collision that what we got-
Xxx IS5: what you get is errors square pie square square.

Xxx I mean that this ((points))-
Xxx S1: I mean what are we squaring that-
Xxx plus the bottom square root.
Xxx IS5: yea just square=
Xxx S1: root that and that's our uncertainty here?=
Xxx IS5: =yea=
Xxx S1: =ok
Xxx S2: ((unclear [because she speaks so softly))
6:00
Xxx IS5: [yea and then- ((stops and listens))
Xxx ((whispers back when S2 finishes))
Xxx S2: (([unclear))
Xxx S1: [which one do you [((unclear))
Xxx IS5: [yea yea yea
Xxx ((unclear))
Xxx ((unclear something about verifying))
Xxx S1: [yes
Xxx S2: [ok
Xxx IS5: I mean P minus (delta) P minus (delta) P
Xxx P is the region that-
Xxx this one minus this one.=
Xxx S1: =uhuh
Xxx IS5: ((motions for calculation))
Xxx S1: ((looks)) uhuh right there.
Xxx IS5: ((punches in numbers))
Xxx right it is 0 point 0 right?=
Xxx S1: (.2) =uhuh
Xxx IS5: and ((continues using calculator))
Xxx this is uh-
Xxx this is four?
Xxx S1: uhuh ok
Xxx IS5: ((unclear))=
Xxx S1: =ok
Xxx IS5: ((unclear)) oh sorry this is ((still writing))=
Xxx S1: =ok
Xxx IS5: ((writing))=
Xxx S1: =ok
Xxx IS5: P (5) this region goes to ((calculates))-
Xxx S2: oh:
Xxx IS5: understand?=
Xxx S2: =yes

Xxx IS5: this is uh ((writes)) ((unclear))
Xxx S3: ((unclear))
Xxx S2: so we are given uh kinetic energy ((unclear)).
Xxx S3: what do we do (with that value)?
Xxx IS5: this is ((unclear)).
Xxx S1: ok I see:.
xxx so the kinetic energy for us is gonna look like
xxx this.
Xxx IS5: yea yea yea and ((unclear)) don't change.=
Xxx S2: =yea yea oh
Xxx IS5: and this is zero so its very past ((unclear))
Xxx S1: so it's just going to be zero.= ((IS5 ignores S1))
Xxx IS5: =this is the-
Xxx S1: so this is gonna be zero.=
Xxx S2: =yea
Xxx IS5: yea and (you said two weeks overlap)-
Xxx with each other,
xxx it is conserved.
Xxx but it it's not overlap.
Xxx this one is ((unclear)) this one right,=
Xxx S1: =yea
Xxx IS5: ((unclear)) is not.
Xxx S1: it's not-
Xxx IS5: so
Xxx S1: it's not overlapping so it's not conserved.
Xxx IS5: so the same ((unclear)) to the other ((unclear))
Xxx so get it now?
Xxx S1: yea thank you
Xxx thank you very much